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Peering Under the Inflationary Veil

Peering Under the Inflationary Veil

Proceedings of a Conference on Inflation-Induced Distortions in Financial Reporting and Taxation

Edited by Patrick Grady

A collection of abridged papers presented at a conference sponsored by the Economic Council of Canada at Toronto on October 15-16, 1981. Although this volume is published under the auspices of the Council, the views expressed herein are those of the authors and, as such, have not been endorsed by Members of the Economic Council of Canada.

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Foreword

Peering Under the Inflationary Veil is the proceedings of a Conference on Inflation-induced Distortions in Financial Reporting and Taxation organized by the Economic Council of Canada at Toronto, Ontario, held October 15-16, 1981. The Economic Council of Canada's role in the preparation of this conference is really that of a catalyst, with a number of other leading national organizations playing major roles in a combined organizational effort. I would like to extend special thanks to the Canadian Institute of Chartered Accountants, The Canadian Manufacturers' Association, the Canadian Chamber of Commerce, the Canadian Federation of Independent Business, and the Canadian Tax Foundation for their roles in organizing this conference. In addition, special thanks should go to the members of our advisory committee, composed of representatives of these organizations, who planned the conference in conjunction with my staff.

The proceedings contain abstracts of the presentations and summaries of the comments made by the discussants and some of the other participants. It also contains an overall synopsis of the conference. These have all been prepared by the editor with a view to preserving in some way the spirit and atmosphere of the conference. Finally, the proceedings include a postscript summarizing the CICA Accounting Research Committee's recommendations for new reporting rules set out in its re-exposure draft, titled *Reporting the Effects of Changing Prices*, which was unfortunately only released in December, after the conference.

With inflation persisting, Canada, like other countries, needs to move towards the implementation of new reporting rules. We welcome the way the Canadian accounting profession is approaching these problems cautiously and yet expeditiously. At the ECC, we share with this profession the view that changes to financial reporting should receive the widest and most informed public scrutiny. Such scrutiny will help ensure general acceptance of sound new rules. It is in this same spirit that we welcome the release of the CICA's re-exposure draft with its proposed authoritative recommendations. We hope also that the proceedings of this conference will contribute, in some small measure, to the implementation and acceptance of new reporting rules that are appropriate in an inflationary environment.

David W. Slater
Chairman, Economic Council of Canada

1 Introduction

by David W. Slater*

The problems at issue in this conference are not new, because the underlying cause – inflation – has been with us for some time. It has been well recognized that chronic inflation creates great problems for rules of financial reporting, especially those based on historical costs. These problems have considerable effect on sound decision making in all sectors of the economy.

What is perhaps "new" about our current situation is that inflation is even more persistent than most of us anticipated. Not only that, but there are few signs that the high, double-digit levels of inflation will decline in the near future. In this economic environment, it is not enough to be aware that reported figures are wrong. We need to establish methods of financial reporting that generate sound figures, and these methods must be generally accepted.

The effects of inflation on rules of taxation are likewise an important consideration. Tax rules made obsolete by high inflation often lead to distortions in effective tax rates paid by industries or firms. These distortions are usually inequitable. Moreover, they interfere with the efficient allocation of resources.

Attempts have been made in other countries to develop solutions to these problems. In the area of financial reporting, the Sandilands Committee of the United Kingdom springs to mind. In most of these countries, a number of changes have been implemented to financial reporting rules. On the taxation front, Canada is among the few countries in which historical cost depreciation still holds sway. In the United States, the Reagan administration has taken new steps in the area of taxation, which are in part a response to these problems. Of special interest among these changes to the American tax system are the revised provisions for depreciation.

At issue in our conference, however, is more than just the provision of sound figures and of appropriate business taxation. There are some very important broad issues that relate directly to these quite limited concerns. For example, there is a growing belief that the problems created by inflation for financial reporting and taxation are partly responsible for the lack of clarity and agreement on investment performance and prospects. As a result, it is very difficult to determine the appropriate size and structure of private and public investment. Another example is that these problems with financial reporting and taxation divert entrepreneurial talent in the labour force from "real" activities to those created by inflation. The confusion created in terms of real growth are significant.

These fundamental issues linked to the problems of financial reporting and taxation in inflationary times were once thought to have been open to solution by the simple reduction of inflation to lower rates. In current economic circumstances, however, the prospects for achieving this goal are low, and we are all aware of how steps to reduce inflation have not been as successful as we hoped. Thus our discussions at this conference must also address some of these broad, fundamental issues I have raised.

**Chairman, Economic Council of Canada.*

2 Synopsis

by Patrick Grady*

Veil after veil will lift – but there must be veil upon veil behind.

Sir Edwin Arnold, The Light of Asia

The existence and importance for public and business policy of inflation-induced distortions in financial reporting and taxation was universally recognized by the speakers at the conference. There was much less agreement on the precise nature of the distortions themselves. Disagreement was rife over the appropriate modifications to financial reporting and taxation required to cope with the distortions. But the need for further experimentation in this complex area was widely perceived.

This synopsis summarizes the major issues debated at the conference. It is necessarily somewhat impressionistic and leaps from theme to theme, juxtaposing remarks made at different times in the conference on similar themes in order to sharpen our focus on areas of agreement and disagreement among the participants.

Because of the view, which found some currency at the conference, that, when it comes to inflation adjustment, financial reporting and taxation each have their own separate aspects, the synopsis deals with these topics one at a time, starting with financial reporting, in many ways the more fundamental of the two. But the two issues are obviously very closely and inextricably related.

Inflation-Induced Distortions in Financial Reporting

The Nature of the Distortions

Evidence on distortions in the aggregate was provided by Abraham Tarasofsky. As he noted, there are several adjustments to book operating income (the sum of profits and interest expense) that must be made in order to offset the distortions caused by inflation and thus obtain a better estimate of the real underlying profit situation. Two of these adjustments reflect the difference between replacement cost depreciation and cost of goods sold and historical cost. These adjustments must be made because, unless a firm covers its replacement costs, it cannot maintain its fixed capital and inventories and remain in the same general line of business in the long run. A third adjustment is for the erosion in other working capital. It has a similar justification. These three adjustments yield real before-tax operating income, which, when taken as a proportion of capital employed, produces the before-tax real rate of return on capital employed. The after-tax equivalent is obtained by deducting actual income tax paid. A further and more controversial adjustment for gains on debt must also be made. The result, reflecting the fact that equity shareholders benefit from the reduced real value of outstanding debt, is called the real rate of return on net worth.

Tarasofsky's rate of return estimates for both the non-farm, non-financial sector and manufacturing show a large gap between nominal and real after-tax rates of return on capital employed that opens up with inflation. For the non-farm, non-financial sector, the gap goes from 2 to 3 per cent in the mid-1960s to 8 to 10 per cent in the late 1970s. The real rate of return remains fairly stable around 5 per cent, while the nominal rate climbs steeply.

Daniel Holland pointed out the same divergence between nominal and real rates of return in the United States, United Kingdom, and Sweden as in Canada. An interesting difference noted by Holland between the U.S. and Canada was that the disparity was as pronounced ten years after the war as in the recent decade.

A similar story concerning the gaps between nominal and real could be told for the rates of return on capital employed in manufacturing in Canada and the rates of return on net worth for both sectors. One difference is the greater degree of variability. It makes sense that a highly cyclical industry like manufacturing should exhibit wider fluctuations than the non-farm, non-financial sector as a whole. It is also reasonable that return on net worth should be more

**President, Grady Economics & Associates Ltd.*

volatile than return on capital employed. Daniel Holland reported similar findings for the U.S.

Tarasofsky observed that the fact that real rates of return on net worth were generally higher than those on capital employed suggested that actual inflation was higher than anticipated and that shareholders have been earning gains at the expense of lenders. This was questioned by Michel Proulx who thought it might have more to do with the risk premium on the return to equity investment.

The impact of inflation on real rates of return was examined by Tarasofsky using econometric techniques. His conclusion was that inflation was not a significant factor as regards the real after-tax rates of return on capital employed in either sector and the real after-tax rate of return on net worth in the non-farm, non-financial sector. In manufacturing, inflation had a significant negative impact on the real rate of return on net worth.

Michel Proulx, in a somewhat different context, raised the question of the meaning of the inflation variable. While he acknowledged that a general inflation should only affect after-tax profitability through its impact in raising taxes, he suggested that inflation resulting from some sources could have a different impact depending on the nature of the inflation. For instance, inflation stemming from relative price changes such as increases in real energy prices can affect after-tax profitability. This was confirmed by some preliminary statistical work that he had done.

Tarasofsky also displayed the relationship between the real after-tax rate of return and the after-tax cost of funds. He said that this data showed an adverse relationship between 1973 and 1978 with a more favourable relationship developing as the 1970s drew to a close. Tarasofsky interpreted this as possibly being another indication that the corporate sector as a whole had by now learned to live with a chronically high rate of inflation. This was contested by Michel Proulx.

More telling evidence on inflation-induced distortions in financial reporting at the industry and firm level was presented by Bert Waslander for a subsample of the *Financial Post* data base of 152 firms for which John Bossons had calculated inflation adjustments. Waslander found that the inflation-induced distortions in reported operating income display substantial variation among industry averages as well as among individual firms. The differences among industries are particularly large for the cost of sales adjustment, reflecting the varying importance of inventory holdings across industries. Waslander attributed the variation of inflation-induced errors for individual firms around industry group averages to the depreciation adjustment, which is in turn related to the age of fixed assets and the share of fixed assets in total capital employed. Waslander also noted that "small" firms (though large enough to be in the *Financial Post* data base) tend to have larger inflation-induced errors than large firms and that inflation-induced errors were negatively related to the real return on capital employed. Waslander interpreted his analysis as confirming that "the incidence of inflation on real returns is uneven across industries and firms." He suspected that this "must have undesirable effects on resource allocation and points to an inequitable distribution of tax and inflation burdens."

Keith Brewer also presented some interesting evidence on inflation-induced distortions using data from Statistics Canada, *Industrial Corporations, Financial Statistics*. His analysis incorporated the same adjustments as Waslander's plus an additional adjustment for the reduction in the real value of net debt. Brewer noted that, for metal mines, the distortion was very volatile whereas, for manufacturing, it grew more steadily with inflation. He also pointed out that in 1980 profits of the mineral fuels sector are only slightly misrepresented since the depreciation and debt adjustment are offsetting, but in the manufacturing sector as a whole inflation-adjusted profits are only 72 per cent of reported profits. The principle reason for the difference between the manufacturing and resource sectors is the larger understatement of inventory costs resulting from the combination of first in, first out (FIFO) inventory valuation procedures and a longer average time spent in inventory. Brewer also made the observation that his data indicated that, even in the 1960s, a period of relative price stability, distortions were far from uniform across both industries and time.

Michael Alexander also provided striking concrete examples of the unevenness of distortions in financial reporting by showing inflation-adjusted and historical cost financial statements for three companies, taken from the public data base of the Financial Accounting Standards Board's (FASB) Financial Accounting Statement 33 (FAS 33).

Michael Mackenzie presented inflation-adjusted income for U.S. and U.K. banks, which diverged substantially from reported income. In many cases, inflation-adjusted income was but a fraction of reported income with the fraction varying significantly across banks. If anyone needed to be convinced of the significance of inflation-induced distortions before coming to the conference, enough persuasive evidence on this question was surely presented.

The Impact of Inflation-Induced Distortions

One of the main reasons for concern about inflation-induced distortions in financial reporting is their possible impact on the appropriate size and structure of public and private investment in Canada. If business and government do not have access to accurate and reliable information on real rates of return, and if tax burdens are shifted arbitrarily and haphazardly among industries and firms by inflation, how can businessmen make good investment decisions and how can government formulate appropriate overall policies affecting investment? This concern was voiced by David Slater at the outset of the conference. It was identified by Michel Proulx as requiring attention in future research. Several other participants also noted the issue in passing. Morley English observed that the question as to how responsive total output would be to improved income measurement and distribution of taxes was not discussed in any detail at the conference. Nevertheless, it remained an important underlying theme of the conference.

A related topic that was examined in some depth at the conference pertained to the ability of capital markets to function efficiently in the presence of inflation. This was inflation-induced distortions in stock market values.

Franco Modigliani persuasively put forward his controversial view that stock prices have failed to keep pace with inflation in the U.S. because participants in the stock market have not used the correct rational valuation procedures because of confusion over the significance of inflation. This view is regarded as heresy by those that believe financial markets function efficiently. Modigliani argued that, instead of capitalizing using real rates of return, they have incorrectly used nominal rates that incorporated an inflation premium similar in magnitude to that exhibited by nominal interest rates. A further reason why inflation might have adversely affected stock market values was also adduced by Modigliani. It was that participants may have failed to correct earnings properly for the gain on the inflation-induced depreciation of monetary liabilities. In short, participants do not realize that interest expenses are overstated. According to Modigliani, these valuation errors would produce a rather dramatic result. Stock prices would be trading at about half the level consistent with rational valuation procedures.

John Grant examined Modigliani's hypothesis using Canadian data. The first fact Grant stressed was that, in contrast to the experience in the U.S., Canadian equities have, except for a few periods in the 1970s, generally kept ahead of inflation. In addition, a model built by Grant and Arif Sayeed at Wood Gundy satisfactorily explains the movements in the Toronto Stock Exchange Composite Index by assuming that investors discount their expectation of future real dividends at a real rate. Thus, there is no need to postulate irrational behaviour in Canada as Modigliani does in the U.S. to explain stock market behaviour.

Franco Modigliani found Grant's paper to be an important piece of evidence to add to the other international material he was collecting. However, he was unconvinced by Grant's analysis. In particular, picking up on an earlier point made by David Slater, he wondered to what extent Grant's results depended on the predominance of resource-based industries in the TSE index with their fundamentally different determinants of performance. Modigliani also questioned the degree to which Grant's real discount rate moved like a nominal interest rate. He suggested, following up on a comment by Bossons, that it makes no sense to rely on leverage as an explanatory variable for a real rate. Grant responded that he had excluded the oil and gas industry from his model and it had not deteriorated substantially. Grant defended the leverage variable on the grounds that the real discount rate would be affected by the risk of bankruptcy, which is related to nominal leverage. In any event, given the disagreement between Modigliani and Grant, the rationality of the Canadian stock market has not been proven to everyone's satisfaction.

New Reporting Rules

The Canadian Institute of Chartered Accountants (CICA) issued an exposure draft in December 1979 proposing a system of current cost accounting. A revised version reflecting representations will be forthcoming in the near future. Pending its release, James Goodfellow outlined the CICA's earlier proposals. Current cost income on two bases is to be disclosed: current cost income of the enterprise, and the current cost income attributable to shareholders. Current cost income is historical cost income adjusted for depreciation, cost of sales, net productive monetary items, and other impacts of specific price changes on productive assets. Current cost income attributable to shareholders incorporates, among other things, a financing adjustment to reflect the impact on net borrowings. The change in the current cost of inventories and property, plant, and equipment would also be disclosed. These disclosures would only be required of large enterprises with publicly traded securities and with inventories, property, plant, and equipment totaling more than $50 million or with assets more than $350 million.

Broadly, the proposed disclosure package was similar to that under FASB 16 in the U.K., but it

differed in many significant respects from that in the U.S. under FAS 33.

While James Goodfellow never said as much, it could be inferred from his vigorous defence of the exposure draft against all categories of critics that its revised version will likely retain the essence of the earlier recommendations. He did stress, however, the need for flexibility for specialized industries so that management can provide the most meaningful information. The presence of some of these critics at the conference made for some lively sessions and helped to highlight the key issues.

John Boersema argued that General Price Level Accounting (GPLA), now referred to as constant dollar accounting, using a single index such as the gross national expenditure (GNE) deflator, is the best way to produce financial statements that are not distorted by inflation, yet meet the same objectives as historical cost statements. He objected to the exposure draft's rejection of financial capital in favour of a concept of maintaining operating capacity. Boersema illustrated the impact of GPLA on the financial position of Shell Canada Limited. On a GPLA basis, Shell's 1980 net earnings were $246 million or 30 per cent less than the $355 million earnings on a traditional accounting basis. This would cut the rate of return on capital roughly in half.

Gary Corlett also favoured taking this kind of broad brush view of the impact of inflation on the ability of a company to stay healthy, which he recalled was the type of approach recommended by the Ontario Committee on Inflation Accounting. He contended that the constant dollar approach can produce 90 per cent of the benefits of the current cost approach for 10 per cent of the work.

In contrast, James Goodfellow thought that there are problems with constant dollar accounting. He could not see how statements expressed in units of general purchasing power could be more useful than those expressed in terms of money. He maintained that it was not very relevant to use a general price index, such as the consumer price index, to adjust specific non-monetary items, such as steel mills, in financial statements. In saying this, he was careful to point out that he did not mean to suggest that information based on general price changes does not provide a useful standard of comparison for specific price changes.

Michael Alexander also supported the current cost approach. He was encouraged by the growing support in the U.S. for the FASB's action to implement current cost accounting with Statement 33. According to Alexander, a large majority of accounting firms now favour the current cost approach over the use of a general index because of its greater usefulness.

The CICA exposure draft called for full supplementary disclosure. Michael Alexander regarded the introduction of change through supplementary disclosure to the basic financial statements as a "practical approach because it does not replace the existing system on which we have to rely – yet it enables analysis and use of additional information." Michael Fogg believed that, in choosing between full and partial supplementary disclosure, the U.S. partial approach was more useful than the U.K. full approach upon which the CICA exposure draft was patterned. Seymour Wigle went even further in volunteering his opinion that, if the CICA had favoured the U.S. approach at an earlier date, we might already have had something in place.

However, Michael Alexander only viewed supplementary reporting as a temporary solution. He said that, since it is difficult to ignore the impact of material price changes in the basic financial statements and still provide a meaningful and useful result, in the long run price changes would have to be recognized in the basic financial accounting model.

The net debt adjustment, which is made to allow for the extent to which profits are understated for the decline in the real value of outstanding net debt in calculating current cost income attributable to shareholders is probably the most controversial of the inflation adjustments. This is probably because it does not represent a cash inflow and because it runs counter to the conservative approach leaning towards the understatement of profits preferred by the accounting profession. Government officials, as noted by Michael Alexander, have tended to favour a debt adjustment. Such an adjustment does have the advantage from their point of view of protecting the corporate tax base. Many economists have also advocated a debt adjustment. With respect to the point that there is no associated cash inflow, Franco Modigliani argued that there would be if the firm maintained the same leverage policy.

Some of the participants made some interesting observations that have bearing on the debt adjustment issue. Michael Alexander gave everyone pause for reflection when he pointed out that, after adjusting for the impact of inflation on long-term debt, it would be General Motors with its healthy debt-equity ratio and not Chrysler that would now be in trouble. Paul Clough expressed concern about any method of inflation adjustment that gives lots of "credit" for "lots of debt." He quoted with approval a Swiss banker who said this was not a "recipe for survival." Bill Detlefsen was also concerned about creating gains from borrowing or working capital deficiency

situations. Along more anecdotal lines, Michael Fogg reported that his wife, upon being informed of their family's gain on debt, went out and spent it. On the pro side of the debt adjustment issue, James Goodfellow argued that the failure of accountants to provide information on the benefits of holding debt in inflationary times was misleading. It presents the bad news only without the good news.

The presentations focusing on the problems of accounting for inflation in particular industries or sectors gave a valuable and different perspective on the overall issue. The sectors represented were the extractive industries – oil and gas, in particular – integrated aluminum production, regulated industries, financial institutions, and – last but not least – small business. Most had some criticisms of the CICA exposure draft.

John Boersema found fault with the CICA exposure draft for being irrelevant and impracticable for the oil and gas resource sector. For oil and gas reserves, which are unique, finite, depleting resources that will not be replaced in kind, the concept of "service potential" is impossible to measure and of questionable utility.

John Schoonover also found the "service potential" concept to be unworkable for large multinationals such as Alcan for which the replacement of a fixed asset may involve a different type of asset in perhaps another country where conditions and performance might be quite different. He wondered if the development of replacement intentions for fixed assets to determine "service potential" can be considered an effective use of management's time for a "what if" excercise. Boersema thought it might be more profitable to use the resources searching for oil and gas.

The accounting problems of the oil and gas industry are compounded by disagreements over the appropriate methodology for preparing historical cost financial statements. Large companies tend to expense dry holes, while small companies capitalize them. This is the distinction between the "successful efforts" and "full cost" approach to accounting for exploration and development expenditures. There is also the issue of reserve recognition accounting, which Keith Brewer considered a promising way of valuing reserves.

John Boersema argued that with unresolved accounting problems such as these the solution appears to be supplementary disclosure. This would include information on reserves and would obviate the need for current cost disclosures. Overall company-wide information on the impact of inflation could be provided through GPLA or constant dollar accounting.

Bill Dettlefsen expressed his agreement with John Boersema. He also offered his opinion that efforts to develop an accounting approach for inflation have so far failed in the extreme case of the extractive industries. He wondered if inflation adjustment can be successful in general even if it is not applicable in extreme situations.

Paul Clough characterized the problems of regulated industries as being the same as all businesses, with regulatory problems added as a layer on top. One of these problems is that the regulatory process is based on historical costs. Clough was encouraged that Canadian Pacific Limited's proposal for handling the inflated cost of assets, "The Current Value Cost of Capital," has been put on the Canadian Transport Commission's agenda. On the other hand, Clough was not very satisfied with the meaningfulness and comprehensibility of the replacement cost information that his own firm and others were supplying the Securities and Exchange Commission in the U.S. He judged that it might be worth some additional delay in Canada to ensure that inflation accounting standards produce meaningful and understandable figures.

For financial institutions, Michael Mackenzie noted that they were specifically excluded from the recommended coverage of the CICA exposure draft. A Task Force of the Canadian Bankers' Association reported in early 1981 on the exposure draft. It noted that the most significant effect of inflation on banks was the gradual erosion of capital. While it came out against rigidly applying current cost accounting to banks, it proposed the publication of supplementary information along the lines of that required in the U.S. Mackenzie personally thought that the publication of inflation-adjusted information might help to call attention to some problems for financial institutions created by inflation. These would include the facts that real growth is substantially less than nominal, capital is eroded by deposit growth, and income is overstated if allowance is not made for current cost depreciation and rentals.

Small business was not covered by the CICA's exposure draft on account of its protests over an earlier exposure draft, according to Irving Rosen. He asserted that the small businessman does not understand current cost accounting information and has no use for it, since it just makes unnecessary work. Rosen noted that there is a limit on the resources that the average small businessman can spend on accounting advice as well as on the capacity of the profession to meet the demands. Current cost accounting could be, as Rosen sees it, "the straw that might break the camel's back."

Many obstacles to the acceptance of inflation accounting were cited at the conference. Michael Alexander said that business is concerned about the way capital markets might react to lower inflation-adjusted profits. Also a larger number of professionals have a vested interest in the present historical cost system. Also, according to Irving Rosen, the small businessman is afraid that current cost accounting would make it more difficult to obtain bank loans, since it would cast a less favourable light on the firm's financial health. Ironically, banks for their part, according to Michael Mackenzie, do not want to publish inflation-adjusted information, because it would make it more difficult to raise money. Perhaps, if this is indeed the case, banks might show a little more sympathy for the hard-pressed small businessman than Rosen might expect.

Many of the participants stressed that usefulness should be a prime criterion for any inflation-adjusted accounting data. Michael Alexander considered it too early to tell how useful the FASB's FAS 33 data was for decision makers. Michael Fogg knew of little evidence that the data was being used outside of the firms except by investment analysts. Michael Mackenzie noted that there was no evidence of use of the inflation-adjusted information for financial institutions in the U.S. and U.K. On the other hand, both Michael Alexander and Michael Fogg were encouraged by the interest shown at a recent conference on how to use inflation-adjusted information for management purposes sponsored by the Financial Executives Institute. Michael Alexander quoted one executive as saying to his staff, "If I am going to be accountable to shareholders on an inflation-adjusted basis, then I am going to hold you as managers accountable in the same way." By the same token, Seymour Wigle contrasted the willingness of management in the U.K. to develop sophisticated internal data to gain competitive advantage with their unenthusiastic approach to developing data in the Statement of Standard Accounting Practice 16 (SSAP 16).

One possible use of inflation-adjusted financial information is to justify earnings to the public. John Boersema was skeptical of this, however. He showed how for his company, Shell Canada Limited, profits could be stated in 1980 at $335 million on a historical cost basis, versus $65 million on a CICA exposure draft basis. He wondered if, given the suspicion with which oil company profits are presently viewed, the public would accept such revised numbers. On the other hand, Michael Mackenzie thought that the publication of restated earnings might assist financial institutions in explaining their earnings.

Michael Alexander made the critical point that, to be useful, inflation-accounting data must be capable of being viewed from both a micro and macro perspective. It would thus help to bridge the gap between the microeconomic decisions made by business and the government's macroeconomic management. This would mean that the data must be aggregatable. The FASB's Statement 33 data bank meets this bill.

Michael Alexander and James Goodfellow both made strong pleas to the accounting profession for leadership in establishing new accounting standards adequately reflecting the impact of inflation. In addition, there was something of a consensus among participants in favour of an experimental approach. Michael Alexander characterized the U.S. approach as represented currently by FAS 33 as a kind of "experimental patchwork."

Inflation-Induced Distortions in Taxation

The Distortions

Inflation-induced distortions in reported income carry over directly into the corporate tax base. Corporate tax revenue is thus increased by the extent to which replacement cost depreciation and cost of sales exceeds historical cost and is decreased by the overstatement of interest expenses. *A priori*, the net effect on corporate tax revenue cannot be predicted, but Abe Tarasofsky presented data taken from a Department of Finance study showing that the real effective tax rate (adjusted for inflation) was higher than the nominal rate on average over the 1976-78 period by about 11.5 percentage points for the non-farm, non-financial sector and by 15 percentage points for manufacturing. Inflation-induced distortions in reported income could also be expected to shift the tax burden among industries and firms creating an uneven pattern of taxation that was related to the industries' and firms' holdings of fixed assets and inventories and their outstanding debt. This was demonstrated by Bert Waslander. Another tax-related distortion noted by John Bossons was the favourable tax treatment of owner-occupied housing relative to other assets such as equities. These tax distortions would no doubt lead to a misallocation of resources.

While there was no difference of opinion among the participants of the conference concerning the tendency of inflation *per se* to raise corporate tax revenues and the resulting distortions in the tax structure, there was substantial disagreement over whether or not the effective corporate tax rate has actually increased as a result of inflation. There are two questions at issue here. The first is the extent to which the discretionary tax cuts introduced by the

government in recent years, such as the two-year write-off and lower tax rate for manufacturing, investment tax credits, and the 3 per cent inventory valuation adjustment, offset the impact of inflation. The second is more philosophical. It relates to the degree to which the tax cuts can be considered a general policy response to inflation.

On the first issue, Abe Tarasofsky asserted on the basis of Department of Finance data that there has been a distinct upward shift in average tax rates in both the non-farm, non-financial sector and the manufacturing sector. Bert Waslander contended using the *Financial Post*-Bossons data base referred to above that average effective tax rates on profits have risen consistently over the period for the 152 firms in his sample to the point where in 1976-78 they were approximately equal to the statutory tax rate. Waslander cautioned that these results could be exaggerating the increase in the effective tax rate somewhat because of low real rates of return in the sample studied.

Waslander also examined the 58 manufacturing firms in his sample separately. For them, he concluded that the tax reductions enacted in the 1970s to lower the effective tax rate in manufacturing relative to other firms did not offset the effect of inflation-induced tax increases. Thus, the effective tax rate for manufacturing rose significantly to the point where it was higher than for corporations in general. This resulted from the larger relative inflation adjustments for manufacturing relating to higher-than-average depreciation rates and inventories and to a relatively low utilization of long-term debt.

Michel Proulx disagreed strongly with both Tarasofsky's and Waslander's conclusions. He said, with respect to Tarasofsky's conclusions, that there were two caveats attached to the analysis of effective tax rates in the Department of Finance study that had to be borne in mind. One was a break in the effective tax rate series in 1977 as a result of a change in the sample of corporations covered by *Industrial Corporations, Financial Statistics*, the data source, which would render intertemporal comparisons less meaningful. The second was a rise in losses, due to the calculation of the average tax rates on the basis of aggregate profits net of losses, which could lead to an illusory increase in the tax burden.

To gauge the quantitative significance of this latter effect, Proulx used the *Financial Post*-Bossons data base. He noted that this data base had been substantially revised from that used by Waslander. His conclusion was that average real effective tax rates based upon companies with positive net income would have increased slightly for the non-financial corporate sector as a whole from 1966-69 to 1974-79, would have increased substantially in resource based industries, and would not show any upward trend in the non-resource industries as a whole or in the manufacturing sector. This latter result contrasted with the conclusions drawn by Tarasofsky and Waslander. It was also confirmed, according to Proulx, by some further analysis using the annual corporate financial and taxation statistics data. In addition, Keith Brewer supported Proulx's contention that the effective tax rate in manufacturing did not increase.

Concerning the philosophical question of whether the discretionary tax cuts can be considered a policy response to inflation, there was substantial disagreement. James Tyrrell argued that they could not, since they were introduced for quite different reasons, such as to compensate for the tax incentive for domestic international sales corporations (DISCs) in the U.S. or to stimulate needed investment in certain sectors, rather than to offset the effect of inflation. Paul Clough also adopted this position claiming that the use of capital cost allowances and investment tax credits is misunderstood by politicians and the public who confuse them with some form of adjustment for the inflated cost of replacing assets.

On the other side of the question was, notably, Morley English from the Department of Finance, who argued that, while the measures were not adopted exclusively because of inflation, they were adopted in an inflationary environment to respond to the problems posed by that environment. Indeed, some measures, such as the 3 per cent inventory valuation adjustment, were specifically intented to compensate for inflation. For others, the connection is less obvious, but perhaps no less real. Seymour Wigle also differed from James Tyrrell in viewing fast write-offs as having an element of response to inflation.

Whether or not tax cuts were introduced and actually succeeded to offset the impact of inflation on aggregate effective tax rates, the fact still remains that inflation has distorted effective tax rates among industries and firms from those intended by policy makers. This brings us to proposals to reform the corporate tax system and reduce these distortions, thereby improving resource allocation.

Proposals for Reform

The first issue under this rubric is, Should the proposals for reform involve net corporate tax reductions or just a redistribution of tax burdens? Those such as James Tyrrell, who believe there has been a significant increase in tax burden because of inflation, favour large net tax cuts. Others, such as Morley English, argue that any proposals should be "revenue neutral" (meaning unchanged corporate

tax revenues). This would require that any tax cuts to compensate for inflation should be financed by corporate tax increases elsewhere, producing losers as well as gainers. By the same token, Seymour Wigle noted that as a realist he could not overlook the need of the government for revenues, and Keith Brewer thought that it would be more realistic to expect a shift in the intercorporate distribution of the total business tax burden than to lower taxation all around.

Many proposals to reform the corporate tax system were discussed at the conference. Since the government has indicated that it is awaiting "a comprehensive inflation accounting system," perhaps a solution would be to base the corporate tax on inflation-adjusted income as measured under such a system when it eventually surfaces and is accepted.

Interestingly enough, none of the participants explicitly advanced this particular proposal. Instead, James Tyrrell argued that the forthcoming recommendations of the accounting profession concerning standards will be by way of broad guidelines for supplementary reporting, which would not qualify as "a comprehensive inflation accounting system." Furthermore, he indicated that this was not the answer to the problem in any event, since tax laws must be written in clear and unequivocal language, and since any correction for inflation should err on the side of simplicity in order to meet the equity test.

Morley English agreed that there would be important factors that could lead to divergence between an inflation accounting tax system and a financial reporting system. He noted that there were already significant differences between tax and book depreciation and that such differences would probably continue. In particular, he could not see how the Department of National Revenue could practicably audit taxes based on price indexes prepared by plant engineers.

John Boersema also stressed that the separation of tax accounting and financial reporting should be recognized and that an accounting solution should not be pushed in the hope that it might result in a tax break. Seymour Wigle noted the example of the U.K. where inflation-adjusted accounting standards did not result in tax recognition, the government's prior encouragement notwithstanding. He warned that the same thing could happen in Canada.

Another issue that would arise in the context of a tax system based on "a comprehensive inflation accounting system" is the appropriateness of levying taxes on any adjustment to correct profits for the overstatement of interest expenses. Since the recipients of the interest income are already being taxed on the full amount, this approach would involve an element of double taxation. This illustrates the importance of addressing the question of inflation-induced distortions in the measurement of real income in the broader context of the overall taxation of investment income in the hands of individuals as well as businesses.

The second proposal, which was put forward by Gary Corlett, would be to abolish the corporate income tax altogether. There could be no denying that this would succeed in eliminating the inflation-induced distortions in tax burdens among corporations. However, to avoid introducing distortions between the non-taxed corporate and the taxed non-corporate sector, the proposal would have to become considerably more complicated along the lines of the Carter Commission recommendation, whereby the corporate and personal income tax system would be integrated by attributing corporate source income to shareholders and taxing it at their marginal rate, with a credit for corporate taxes paid. Otherwise individuals could avoid taxes by retaining their income in corporations. Moreover, to eliminate inflation-induced distortions, it would have to be inflation-adjusted income that would be attributed. Thus, the initial simplicity of Corlett's proposal vanishes on closer inspection.

The rest of the proposals would qualify as *ad hoc* measures. The third proposal advanced by John Bossons is to index capital consumption allowances on the equity-financed portion of new investment. Limiting the indexation to the equity portion is in recognition of untaxed real gains on outstanding debt. This proposal is attractive from the government's point of view, since it minimizes its revenue loss by not granting tax relief on the existing capital stock. It thus provides a large investment stimulus at a minimal cost, as evidenced by Bossons' simulations of the effect of the proposal with the FOCUS econometric model of the Institute of Policy Analysis.

John Boersema also favoured indexing capital consumption allowances to some general index. But he did not specifically limit the indexing to new investment and to the equity financed portion, and he called for a similar indexing of inventory values to improve the inventory valuation adjustment.

The fourth proposal, put forward by James Tyrrell on behalf of The Canadian Manufacturers' Association, was for indexing of equity. It protects the purchasing power of the owner's equity from taxation by allowing a deduction from taxable income equal to the product of equity and the rate of change in the GNE deflator. If the cost is too great for the government to bear at the present time, it could be phased

in. The advantage of this proposal is its simplicity. Tyrrell acknowledged that it does not get at the root of the problem of distortions in tax burden caused by interindustry and interfirm variation in capital intensity and life, inventory holdings, working capital, and debt.

The final proposal mentioned by Michael Fogg and Irving Rosen was for the allowance of last in, first out (LIFO) for inventory valuation for tax purposes instead of first in, first out (FIFO). This would follow the current practice in the U.S. and would mostly eliminate the taxation of illusory inventory profits as long as inventory stocks were growing. If stocks were liquidated earlier, lower prices would be used for valuation, and illusory inventory profits would reappear. It would presumably replace the existing 3 per cent inventory valuation deduction, which Tyrrell and Rosen consider to be inadequate. Incidentally, it is not so clear that this is indeed the case to the extent that the inventories are financed by debt. Robin Boadway, Neil Bruce, and Jack Mintz of Queen's University have demonstrated in a paper presented at the 1981 Canadian Economic Association meetings that, even with FIFO, the 3 per cent inventory allowance is probably more than adequate as a result of the full deductibility of nominal interest charges to finance the inventory holdings. Some of those, such as Irving Rosen, who favour the adoption of LIFO to handle the problem of the taxation of illusory inventory profits due to inflation also support some form of accelerated or indexed capital consumption allowances.

In developing proposals for reforming the corporate tax to take inflation into account, Michael Fogg identified an additional problem faced by a small open economy such as Canada, which is of less concern in the U.S. and U.K. It is the need for international harmonization. In a similar vein, Morley English warned that, with so many foreign subsidiaries in Canada, tax reductions to eliminate distortions could possibly have the unintended result of raising foreign taxes, thus transferring tax revenue to foreign fiscs. He also pointed out that a markedly different tax base in Canada from those abroad would pose both problems and opportunities for creative tax accounting.

Conclusions

These are the main issues addressed at the conference as I see them. Many of them are far from resolved. At the conference, we succeeded in lifting veil after inflationary veil only to discover yet more veils underneath. Nevertheless, as the number of veils diminished, it was possible to gain a better appreciation of the underlying economic structure. For a similar appreciation, the reader is encouraged to turn to the abstracts of the papers presented at the conference, contained in these proceedings. In perusing them, he will no doubt develop his own interpretations of the issues.

3 The Rocky Road to Inflation-Adjusted Financial Reporting and Taxation Rules

*by Michael O. Alexander**

After ten years of grappling with inflation, many people have begun to understand what it takes to live, to work, and to produce in an inflationary environment. However, for accountants, economists, and tax policy makers, the road to change has apparently been strewn with obstacles, since they have not yet adapted their systems to the reality of inflation. Why is it taking so long? I will answer this question on the basis of my first-hand observations during the past ten years, attempting to describe the resistances encountered, the consequences of failing to change, and the potential benefits of finding a solution to the problem of accounting for inflation.

In 1976, a study conducted for the Business Council on National Issues by Touche, Ross and Co. revealed the extent of the capital erosion that had already occurred in many companies. In 1977, I studied inflation accounting as chairman of an Ontario government committee, which concluded by proposing a method for disclosing the effects of inflation in financial reports. The proposed disclosures never became mandatory but, in 1978, some twenty major companies voluntarily disclosed. It is a pity that the Canadian accounting profession did not pursue this further, given the willingness of business to co-operate.

In contrast, in the United States in 1978 the Financial Accounting Standards Board (FASB) was trying to devise inflation accounting methods against the resistance of the business community and accounting profession. It is possible that this resistance stemmed from the replacement cost disclosures required several years earlier by the Securities and Exchange Commission in annual filings.

At the end of 1978, the FASB issued proposals for inflation accounting. After conferences, public hearings, and months of deliberation, the FASB issued its Statement 33 on financial reporting and changing prices, which required disclosure of supplementary information by the 1,500 largest U.S. companies, starting with their 1979 annual reports.

Resistance to change should be taken very seriously. Business wanted changes in the tax system, but was less confident about the way capital markets might react to their lower, inflation-adjusted profits. Professional accountants wanted to protect the integrity of the historical cost system and their debates were bogged down in methodology and the belief that a general index was safer than the current cost method.

Politicians did not resist inflation accounting because they did not understand the issues. Two exceptions were John Turner and Darcy McKeough who saw the connection between the business scorecard and public understanding and urged accountants and business to get on with adjusting their financial reports.

Labour saw inflation accounting as a scheme that might ultimately affect the wealth distribution process. Some suspected it would lead to tax changes favouring business, and thus rejected it in spite of their belief in the value of having good information. Government officials also viewed inflation accounting with suspicion. They questioned the methodology, claiming that inflation-adjusted profits did not include gains from long-term debt. This is a valid point, but not a simple one. On this basis, it would be General Motors with its healthy debt-to-equity ratio and not Chrysler that would be in trouble.

The stock market was the first to reflect the impact of inflation on business. Stock market prices declined in real terms following a pattern more closely correlated with the inflation-adjusted earnings.

Why do we encounter resistance to change? Perhaps it is because accounting and taxation systems can only be changed if they are replaced with something else. Inflation is an environmental

**Director, Research and Technical Activity, Financial Accounting Standards Board.*

change of such proportions that it cannot be gradually accommodated. Long-standing adherence to historical cost accounting and overspecialization inhibit change. A large number of professionals have a vested interest in the present system.

In spite of their distortions, both accounting and taxation will not become extinct, but will continue to survive. The problem is that, unless they are changed, we may do damage to our capital formation and wealth-generating process.

The consequences of not adopting inflation-adjusted financial reporting and taxation systems are many. Badly informed decision makers may have lost many opportunities. Inflation may have drastically distorted some of the original intentions of tax policies. An example of this is the exemption for owner-occupied housing from capital gains tax. This has tended to depress investments in common stocks, which lack a similar exemption. The tax system in the United States suffers a similar distortion because of the deductibility of mortgage interest.

For business, it is difficult to know the consequences. If the corporate tax structure had been adjusted for inflation, however, taxes would have been reduced, and that would have helped the cash flow. For government, policy makers were uninformed of the important effects of inflation on individual industries. Also, since government policy is influenced by public opinion, the absence of inflation-adjusted information has made it difficult to bring about a public realization of the effects of inflation on capital formation, savings, and overall wealth-generating activity.

The difficulty of the oil and gas industry in explaining its unusually high profits reported by the conventional accounting systems demonstrates the importance of inflation-adjusted information.

In spite of the resistance, there are clear signs of change. In the marketplace, risk takers, entrepreneurs, and dealers of all kinds are making adjustments and innovating in response to this inflationary environment. And each innovation points further to the serious difficulties in conventional (historical cost) accounting.

There are many examples. Accounting for foreign exchange fluctuations is one. Shared appreciation mortgages, asset-linked bonds, interest rates, and commodity futures are others. Pensions are affected by inflation. The situation of savings and loans in the U.S. has been concealed by conventional accounting methods.

Management is showing growing interest in inflation accounting. One senior executive with General Electric in the U.S. said to his employees, "If I am going to be accountable to our shareholders on an inflation-adjusted basis, then I am going to hold you, as managers, accountable in the same way." There are now training programs on how to use inflation-adjusted information for management purposes. A recent conference sponsored by the Financial Executives Institute attracted more than 250 financial managers of major corporations.

It is still too early to tell how useful the inflation-adjusted information required by FASB's Statement 33 will be for decision makers. But good information improves the changes for good decisions. Investors will surely benefit and capital markets will function more efficiently. Management will become more disciplined by a scorecard that recognizes the effects of inflation. The connection between business reporting, public opinion, political response, and taxation policy is also apparent.

Despite potential benefits of adjusting for inflation, accountants and economists need to find more common ground in their respective roles of financial reporting and economic policy making. Accountants and businessmen usually have a microeconomic perspective as manifested in the financial statement. Economic policy makers are largely concerned with macroeconomic analysis, which is based on macroeconomic data prepared from the financial reports of business by adding the individual numbers together to bridge the gap between "micro" and "macro."

When a group of accountants sit down to develop an inflation accounting method, they are likely to ignore the macroeconomic perspective. Since policy making is based primarily on macroeconomic analysis, much valuable inflation-adjusted information may be lost because it is not produced in a form that is capable of being aggregated. Thus, to be useful for economic policy, the inflation accounting method must be designed so that data can be aggregated.

To bridge the gap between "micro" and "macro" in the U.S., the FASB developed a computerized data bank that includes all inflation-adjusted data provided by some 1,500 companies to whom Statement 33 applies. The availability of this file through normal time-sharing and commercial data bank firms will ensure that all users of financial reporting information can assess the meaning of what has happened at both the microeconomic and macroeconomic levels.

It is striking and encouraging when we look back at how much has happened over the past few years. Support has grown for the FASB's action with Statement 33. Now a large majority of accounting firms favour the current cost approach over the use of a general index because of its greater usefulness.

The real challenge to accounting is finding a way to deal with the realities of price changes in the financial reporting system. This problem will continue and cannot be ignored.

The FASB issued Statement 33 to deal with inflation and changing prices in the United States. It is a kind of experimental patchwork, however. It is really the basic historical cost accounting system that is on trial.

Introducing change through supplementary disclosure to the basic financial statements is a practical approach because it does not replace the existing system on which we have come to rely – yet it enables analysis and use of additional information. But it is difficult to ignore the impact of material price changes in the basic financial statements and also provide a meaningful and useful result. To relegate this impact to notes or supplementary information can only be a temporary solution. In the long run, it will have to be recognized in the basic financial accounting model if accounting is to be useful in decision making.

Canada, being relatively small and young and unencumbered by tradition, is in a unique position to lead other countries in adopting a system of accounting for the effect of price changes in business reporting. If Canada leads, there is the risk of being left out on the limb internationally. But the risks of taking the wrong step are far outweighted by the advantages of being the leader on the rocky road to inflation adjustments.

4 Inflation-Induced Errors in Stock Market Values

United States

by Franco Modigliani*

It is well-known that equities are supposed to provide a reliable hedge against inflation, anticipated or not. It is equally well-known that this expectation has not at all been fulfilled, at least in the case of the great inflation that began in the United States in the late 1960s and is still going strong. Yet, as is shown in Chart 4-1, from 1968 to the end of the 1970s, stock prices have fluctuated almost trendlessly, and, even after the modest recent recovery, a broad index such as Standard & Poor's is only some 30 per cent above its 1968 value. In the same period, broad indexes of prices have increased not far from 150 per cent. Inflation has thus reduced real equity values by over 40 per cent.

It is also known that inflation produces serious distortions in the measurement of a number of variables that play a central role in assessing the intrinsic value of equity claims. Indeed, we can think of that value as representing the ratio of (expected) earnings – the numerator – to an appropriate capitalization rate or required return – the denominator. Inflation affects both the relation between conventionally measured earnings and true earnings prospects and that between returns on competing assets such as bonds and the appropriate capitalization rate for equity. Both of these factors have been adduced as explanations for the failure of stock prices to keep pace with inflation.

However, if earnings are adjusted to account properly for the cost of replacing physical capital and goods sold, and for the cost of borrowed funds, as well as income from nominal assets, then, as can be seen in Chart 4-2, earnings have kept up with inflation, at least in recent years. This is also true for reported earnings, because the overstatement of earnings resulting from historical cost depreciation and cost of goods sold is offset in the aggregate by the understatement of earnings stemming from the cost of borrowed funds.

Another explanation for the decline in real stock prices that has been advanced is that taxation based on nominal earnings has become more and more burdensome. That this is not the case is evidenced by the relatively stable corporate tax burden shown on Chart 4-3.

The gradual erosion of real stock prices in the face of largely unchanged real profits has meant that the rise in inflation has been accompanied by a remarkable increase in the average earnings-price ratio as displayed in Chart 4-4 to the point that it is now about twice what it was in the late 1960s.

The challenge is to explain this increase in the capitalization rate. It is consistent with the well-known and widely observed phenomenon that interest rates do rise roughly in step with inflation. However, it flies in the face of the accepted proposition in the theory of rational valuation of equities that the capitalization rate for earnings should behave like the real rate of interest and not change with inflation, except insofar as inflation changes the real interest rate itself and/or affects the risk premium required by investors.

The reason why the earnings-price ratio should behave like the real rate of interest, instead of responding to inflation-like nominal interest rates, is that equities, in contrast to debt, represent a claim on real assets and on the resulting real profit stream, which is presumably not significantly affected by inflation. Accordingly, the earnings-price ratio in contrast to nominal rates should not include an inflation premium.

These considerations suggest that the behaviour of the stock market could reflect the mistaken view that a stock should be priced so as to produce an earnings-price ratio commensurate with the nominal rate of interest. This view is supported by i) casual observation of the negative association between market action and interest rate movements, ii) the plausibility

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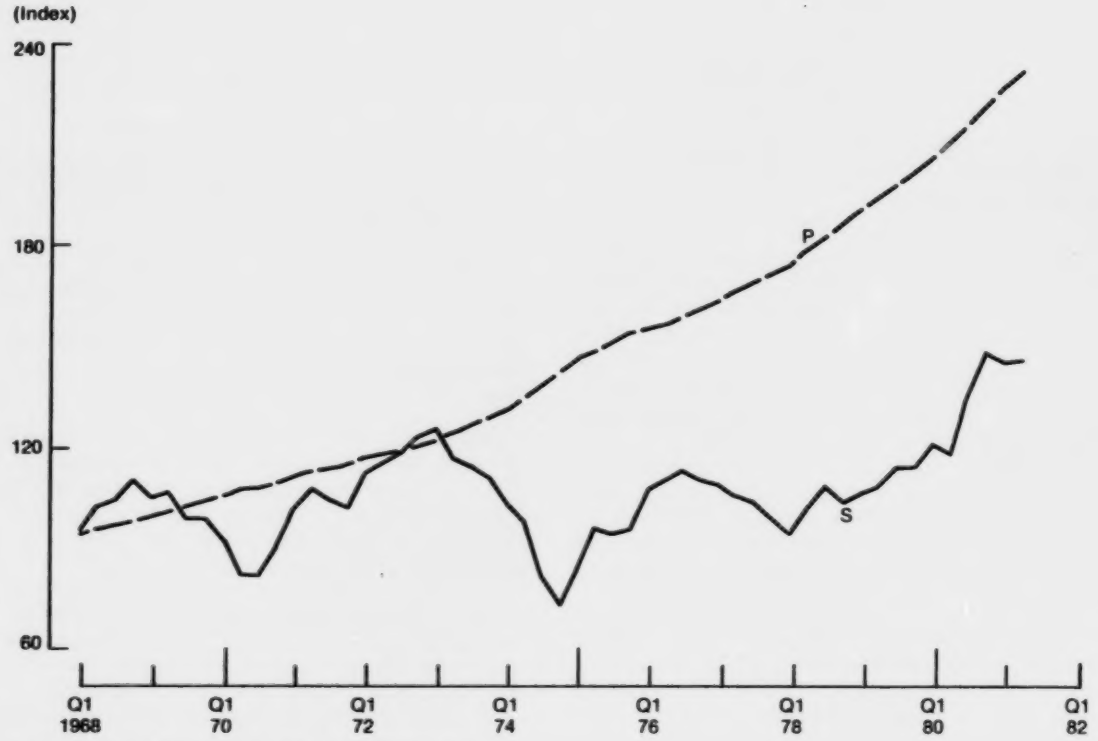
Chart 4-1

Comparison of Stock Prices and the Price Level, United States, 1968-81



P Gross domestic product deflator index (1968 Q1 = 100).
S Standard & Poor's 400 Industrial Index (1968 Q1 = 100).

SOURCE U.S. Department of Commerce, Bureau of Economic Analysis; and Standard & Poor Corporation.

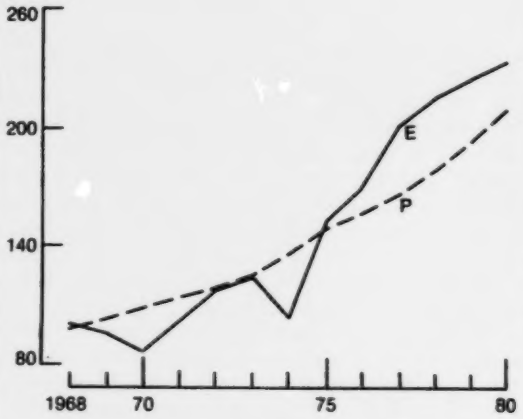
of carrying over into an inflationary environment associations between earnings-price ratio and interest rates that are rational in the absence of inflation when interest rates are real, and iii) perusal of the financial press, including brokerage house memoranda, and conversation with portfolio managers.

Some critics of this view argue that the increase in earnings-price ratios in line with inflation does not represent inflationary illusion but rather an increase in the risk premium associated with stock ownership resulting from inflation. If this criticism were valid, the highest risk stocks (those with the greatest beta coefficients) should have experienced the greatest increases in earnings-price ratios. Since empirical research clearly demonstrates that this has not occurred, the criticism is obviously off-target.

There may also be a further reason why inflation affected stock prices adversely. It is a failure to correct profits properly for the inflation-induced depreciation of monetary liabilities. This means that a rise in interest rates due to an increase in the inflation premium results in a fictitious decline in perceived profits. This error is justified on the grounds that the gain from depreciation of debt should not be included in profits, because it is a windfall gain rather than income, or because it does not represent a cash inflow. Both justifications are untenable if companies

Chart 4-2

Comparison of Adjusted Net Before-Tax Profits and the Price Level, United States, 1968-80

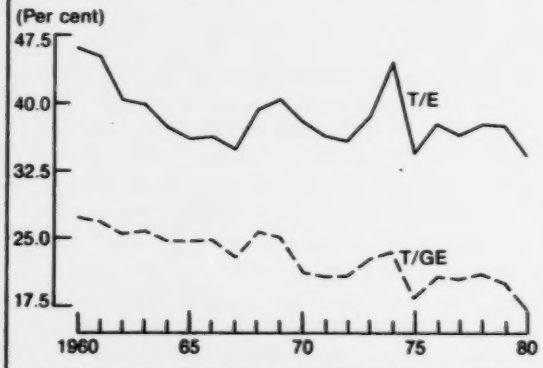


E Net corporate earnings, before interest, adjusted for inventory valuation, capital consumption.
P Gross domestic product deflator index (1968 Q1 = 100).

SOURCE U.S. Department of Commerce, Bureau of Economic Analysis.

Chart 4-3

Effective Corporate Tax Rates, United States, 1960-80



T/E Corporate taxes/net corporate earnings, before interest, adjusted for inventory valuation, capital consumption.
T/GE Corporate taxes/gross before-tax earnings, adjusted for inventory valuation plus capital consumption allowance.

SOURCE U.S. Department of Commerce, Bureau of Economic Analysis.

maintain the same leverage policy, which they appear to do, because the required debt issue to finance the repayment of principal induced by the inflation premium results in a steady cash inflow.

Using econometric techniques to assess the quantitative effects of the valuation error suggests that stock prices are trading at about half the level that would be consistent with rational valuation procedures. To conclude, one can see many reasons why the market should state a recovery towards this much higher level. But anyone who pursues an investment policy based on rational valuation in a world in which lapses from rationality seem to have a way of persisting does so at his peril.

Comments

by John Bossons*

The effect of inflation on stock market values is an important topic. It has bearing on the cost of capital and distribution of wealth, both of which are important factors affecting investment.

There are several potential impacts of inflation on stock values and price-earnings ratios. Modigliani focused on the first, the so-called inflation illusion question. Price-earnings ratios could go down or capitalization rates up because of mistaken perceptions about real interest costs. It is quite possible that investors do not realize the extent to which interest expense is overstated. Moreover, even if they do, they may still be applying nominal discount rates, which are too high in discounting earnings.

It should not be surprising that investors overstate true interest costs or do not adjust earnings. Michael Alexander's paper showed this is not an easy question. This same mistake is being made by policy makers and economists who comment on the government deficit and who should know better. Tax increases have been advocated in the current juncture in spite of the fact that, if the federal government deficit is adjusted for inflation, the result is a deficit of only $1 billion rather than $8 billion. Furthermore, if the adjustment is made to the total government deficit, the result is a $6 billion surplus. In U.S. terms, this would be $60 billion.

There are other channels through which inflation can affect real magnitudes. Modigliani is correct in arguing that an increase in the risk premium cannot be behind lower price-earnings ratios. Indeed, stocks

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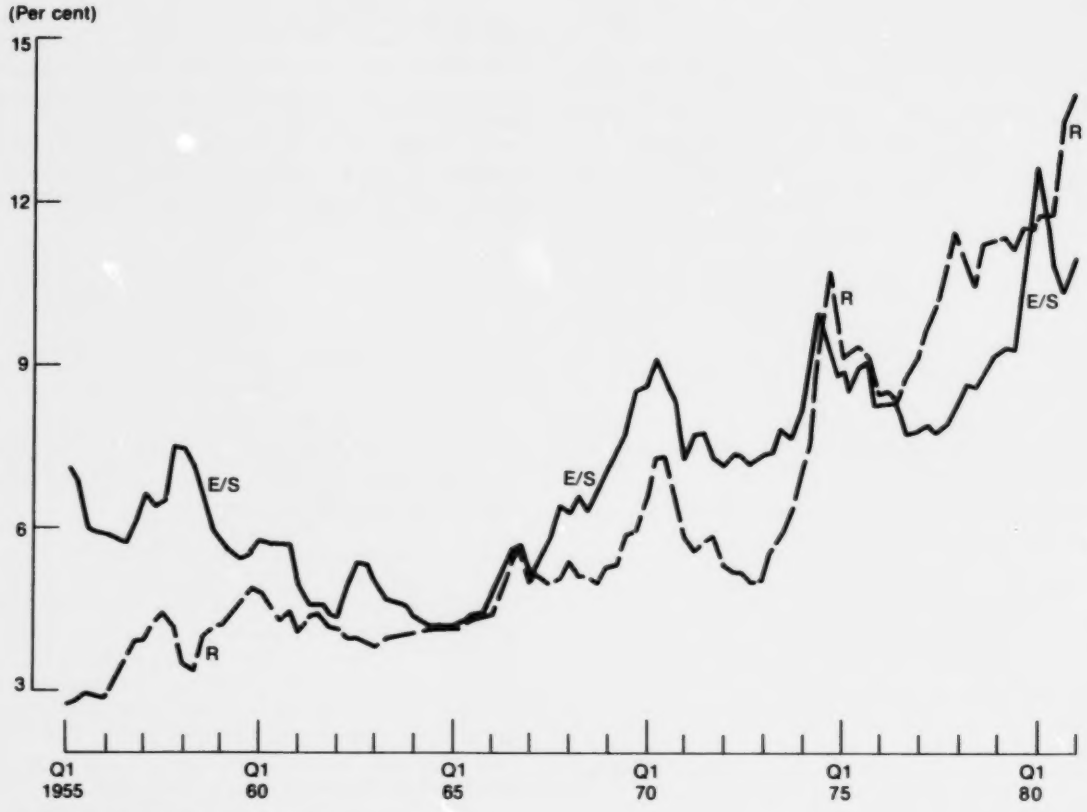
Chart 4-4

Comparison of the Earnings-Price Ratio and the Nominal Interest Rate, United States, 1955-81



R Interest rate on new issues of AA corporate bonds.
E/S Earnings-price ratio for 400 Industrial Stocks.

SOURCE U.S. Treasury Department, *Treasury Bulletin*, current issues; and Standard & Poor Corporation.

should be a hedge against inflation because they represent real assets. Thus, inflation should be expected to move investors out of bonds and into stocks. However, inflation may not be uniform and could have relative price impacts. This could lower price-earnings ratios. Also, it is possible that inflation could increase real interest rates by leading to greater variability in government policy.

Market responses to changes in effective tax rates occur at the personal level. This stems from the lack of distinction in the tax system between nominal and real income from capital, which is quite different. The capital gains tax in particular has an important impact on equities, as noted in a paper done for the Joint Industry Committee on Taxation on the securities industry. Inflation has increased the effective tax rate on real capital gains to the extent that it is greater than that on other income. This is compounded by the fact that the capital gains tax does not apply to owner-occupied housing. A shift in the composition of household portfolios away from stocks and into housing is thus encouraged. Price-earnings ratios could be lowered. To trace this through would require general equilibrium analysis.

Another channel whereby taxes can reduce price-earnings ratios is at the corporate level. Taxes affect

the expected growth rates of corporations. Higher taxes resulting from inflation can have a discouraging effect on investment.

A variety of channels through which inflation can reduce price-earnings ratios has been mentioned. They can have a potential impact even if investors are fully informed and rational.

In conclusion, there are some implications for policy. Better accounting data are badly needed. If inflation illusion exists, inflation-adjusted data would help to correct it at both the micro and macro levels. The benefits could be especially great at the macro level, where the cost of inappropriate fiscal policy is high. The tax system also needs to be reformed because of the distortions created by varying tax burdens across industries. An estimate of the impact of indexing the capital consumption allowance on new investment done with Gregory Jump showed significant effects. The increase in investment was large enough to produce increases in output sufficient to more than pay for the revenue loss to the federal and provincial governments. The GNE was up by 2 per cent by the end of the decade. Employment was stimulated. There was also a slight reduction in inflation. This latter is a supply-side effect, which results from policy shifting out aggregate supply.

Canada

by John A. G. Grant*

Our work on the Canadian evidence does not support Professor Modigliani's hypothesis. As is shown in Chart 4-5, except for a few periods in the mid-1970s, Canadian equities generally kept ahead of inflation. Over the twenty-five years ending December 31, 1980, and during the last ten years, the total return to shareholders (assuming reinvestment of dividends without tax) has been, for the Toronto Stock Exchange Composite Index, on average about 4 to 5 per cent higher than the rate of inflation in the consumer price index.

At Wood Gundy, Arif Sayeed and I have built a model of the TSE composite index whereby investors discount their "expectation" of future "real" (constant dollar) dividends at a "real" rate. We have been able to show that the real rate changes over time and is correlated with a movement of key financial ratios, primarily the ratio of corporate liabilities to shareholders' equity and the after-tax rate of return on corporate equity. This model satisfactorily explains the movements in the index without recourse to assumed irrational behaviour postulated by Modigliani.

An important feature of our model is the way in which it allows the real discount rate to rise. During 1974, when the TSE composite index declined nearly 30 per cent, the implicit real discount rate rose from about 5.5 per cent to nearly 8 per cent. In our view, the reason was mainly a rise in the ratio of liabilities to equity (measured as an average for all Canadian industrial corporations) from 1.06 in the third quarter of 1973 to about 1.20 by the fourth quarter of 1974. Corporations' after-tax return on equity peaked in the third quarter of 1974 at about 15.5 per cent and then dropped during the next three years to 11.5 per cent in 1977. The required real return on the TSE index rose to the 8.5 per cent range during this period. Since then, the price of the index has risen sharply corresponding to a renewed drop in the real discount rate to the 5.5 per cent region in mid-1981. Our model explains this primarily as a response to the strong improvement in corporate return on equity. The increase in the real discount rate in the late summer and fall of 1981 has not been incorporated in the chart.

Another factor behind the decline in stock "earnings multiples" is a downward revision of expectations of future growth in real dividends per share. From the mid-1960s until about three years ago, real dividends per share on the TSE index had been generally declining. But the rise in the real discount rate played the dominant role, and we feel confident in stating that it can be adequately explained by a deterioration in published financial statements. Thus, the Modigliani-Cohn hypothesis that investors have been irrational in evaluating equities is unnecessary and irrelevant for the Canadian stock market.

Since our work has concentrated on the real dividend discounting approach but has used reported financial ratios and variables rather than inflation-adjusted data, it does not allow us to determine the validity of the second part of the Modigliani-Cohn hypothesis, namely, that investors have underestimated "true" profits by ignoring the reduction in the real value of corporate liabilities due to inflation.

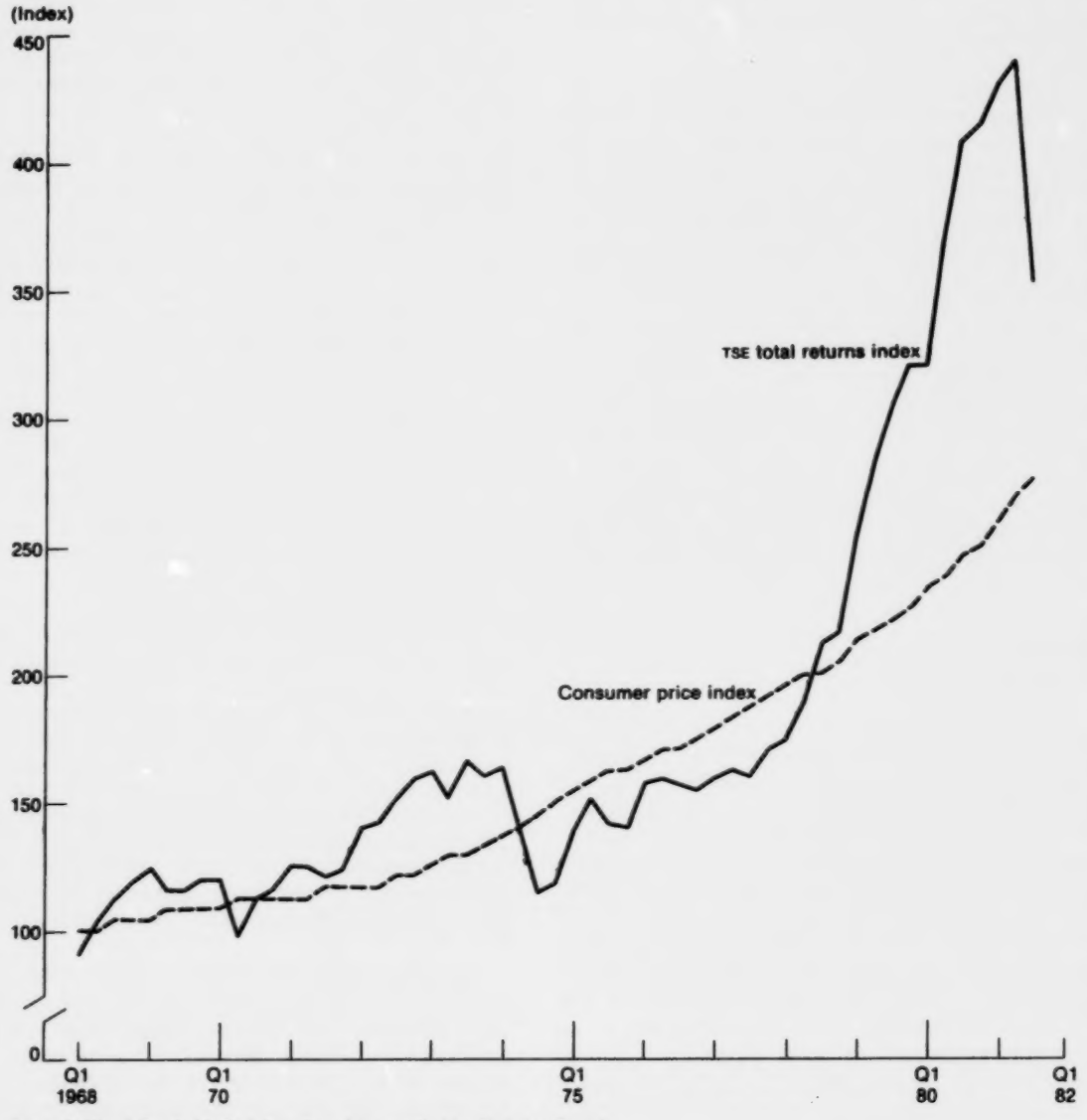
Discussion

David Slater asked John Grant if it made any difference in his analysis if he were to look at the total

**Vice-President, Director, and Chief Economist, Wood Gundy Limited.*

Chart 4-5

Comparison of Toronto Stock Exchange Total Returns Index and Consumer Price Index (December 1967 = 100), Canada, 1968-81



SOURCE Wood Gundy Limited, based on data supplied by Statistics Canada.

return on the TSE index excluding oil and gas. Grant replied that it was certainly true that oil and gas had done better than the index as a whole. But he had reservations about the applicability of the methodology once it departs from the use of a broad-based index, because then the past cannot be used to predict future earnings. Nevertheless, he had taken oil and gas out of his model, and it did not make the results deteriorate substantially.

John Bossons wondered why the real discount rate was so much higher now and more volatile. The low

in the 1970s was higher than the high in the 1960s. He disagreed with the comment that this could result from leverage. If adjusted figures, rather than the unadjusted ones used by Grant, were employed, then until 1978 there was not much change in leverage from its 1968 level. However, if it is reported leverage and not real leverage that is important, this could be taken as support for Modigliani's inflation illusion hypothesis. Grant countered that the model was fitted over past history and remains robust over the period before and after inflation picked up. There is a literature that it is the risk of bankruptcy that counts and, for this, nominal leverage is the critical factor.

John Bossons was asked about the similarities between his tax cut prescriptions and those of Arthur Laffer. He responded that they were quite different. Laffer's proposal was for an across-the-board rate cut, whereas his was for indexing capital consumption allowances. To a certain extent, it is a gimmick. It is self-financing because the revenue loss is spread over time, building up more slowly than the revenue gain resulting from the higher level of output stemming from the immediately induced increase in investment. This result depends on the elasticities involved and cannot be predicted *a priori*.

Franco Modigliani said that he regards John Grant's paper to be an important piece of evidence to add to that being compiled by Cohn and himself for *inter alia* France, Germany, Japan, Italy, and the United Kingdom. Grant's methodology seemed sound, although it starts with dividends rather than earnings. Dividends are projected by fundamentally backward-looking devices. This makes one wonder to what extent Grant's results stem from the prevalence of resource-based industries where it is unreasonable to project future dividends on the basis of the past. This is a good reason to leave them out. There is also the key question of the degree to which the real rate moves like a nominal interest rate. In an analysis that tries to defend rational behaviour, it makes no sense to use leverage as an explanatory variable, as Bossons also pointed out. The great rise in leverage in 1974 occurred because corporations had to borrow to keep up debt in relation to nominal assets. If the real discount rate rose because of this, the stock market would be reacting to money illusion, thus confirming his irrationality hypothesis.

5 Inflation-Adjusted Rates of Return and Effective Tax Rates, by Aggregates and Industry Groups

The Canadian Experience

*by Abraham Tarasofsky and H. Bert Waslander**

The Aggregate Analysis (A. Tarasofsky)

This part of the exercise consists of reporting the average real (inflation-adjusted) rates of return earned in the aggregate by the Canadian non-farm, non-financial sector and the Canadian manufacturing sector during the period 1963-79. Two rates of return are reported: the rate of return on capital employed and the rate of return on net worth. The related indicator of effective tax rates is also reported. In addition, results of econometric analysis of both real rates of return are also presented, as are data pertaining to the valuations by capital markets of firms during recent years of high inflation.

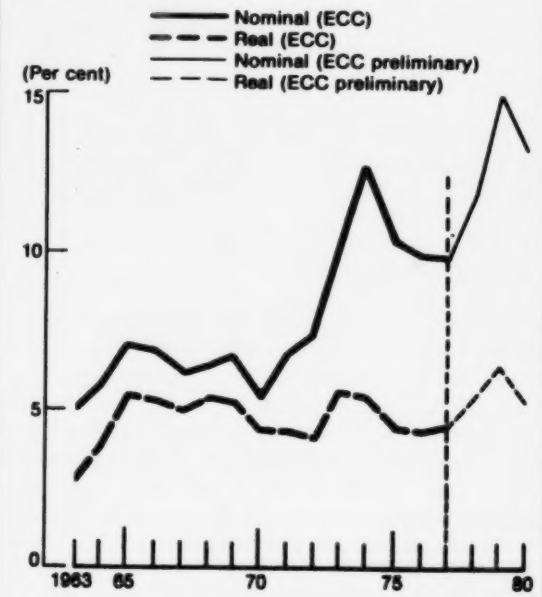
The starting point in the analysis is the nominal before-tax profits reported by the firms. A number of adjustments are made to these profits in order to offset the distortions caused by inflation. These adjustments are made in the spirit of the operating capacity version of the capital maintenance concept of income. They involve a variety of price indexes, each deemed most appropriate to specific types of assets and liabilities. Capital employed consists of the sum of inventories, other working capital, and fixed assets at replacement cost. For the before-tax real rate of return on capital employed, the sum of nominal before-tax profit and interest expense is subjected to adjustments for cost of sales (inventory valuation), other working capital, and depreciation and depletion.

The resulting figure constitutes the numerator in the before-tax real rate of return on capital employed. The after-tax equivalent is obtained by deducting actual income taxes paid. (Deferred income tax is included in equity.)

The nominal and real after-tax rates of return on capital employed calculated for the non-farm, non-financial and manufacturing sectors are shown in Charts 5-1 and 5-2, respectively. Note the large gap between nominal and real rates of return that opens up with inflation. The real rate of return remains roughly constant.

Chart 5-1

Nominal and Real After-Tax Rates of Return on Capital Employed, Non-Farm, Non-Financial Corporations, Canada, 1963-80

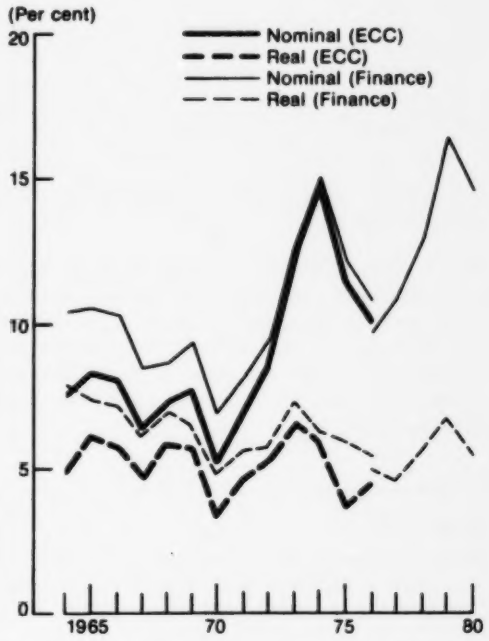


SOURCE Estimates by the Economic Council of Canada.

*Senior Economist, Economic Council of Canada; and Assistant Director, Economic Analysis Division, Ministry of State for Economic Development.

Chart 5-2

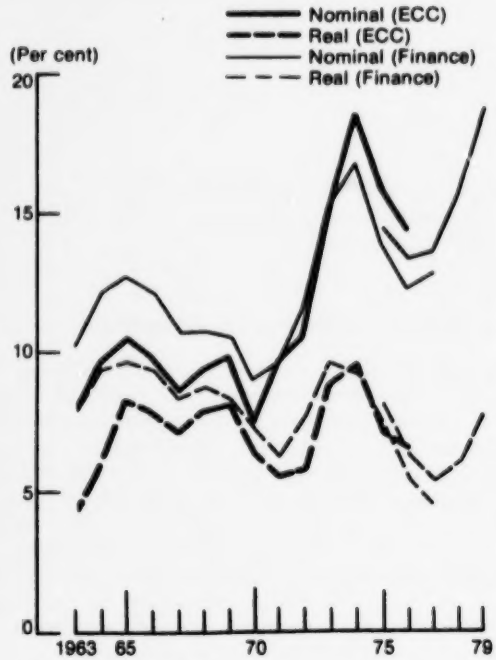
Nominal and Real After-Tax Rates of Return on Capital Employed, Manufacturing Corporations, Canada, 1964-80



SOURCE Estimates by the Economic Council of Canada and the Department of Finance.

Chart 5-3

Nominal and Real After-Tax Rates of Return on Net Worth, Non-Farm, Non-Financial Corporations, Canada, 1963-79



SOURCE Same as for Chart 5-2.

Because this is an analysis of aggregate data, it is not possible to estimate the rate of return on common equity. Instead, the rate of return on total equity (net worth) is estimated. In addition to the foregoing inflation adjustments to nominal profits, an adjustment is made to reflect the gain on net non-current debt in order to derive the numerator of the real rate of return on net worth. The denominator consists of capital employed at replacement cost less net non-current debt.

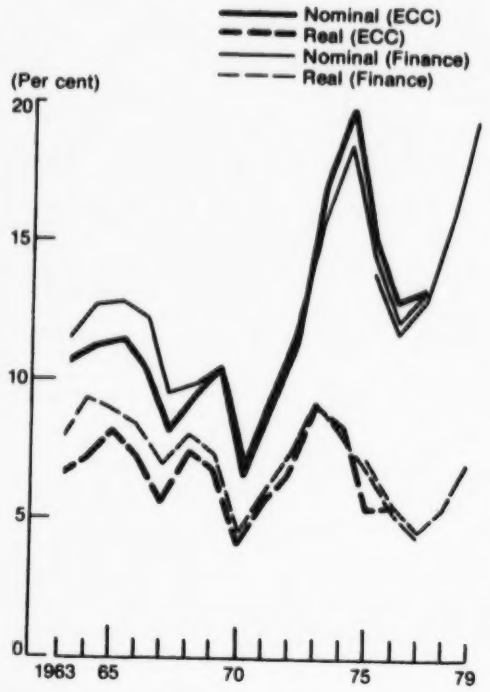
The nominal and real after-tax rates of return on net worth for the non-farm, non-financial and manufacturing sectors are displayed in Charts 5-3 and 5-4, respectively. Once again, note the large gaps between nominal and real rates of return. Also, the fact that rates of return on net worth are generally higher than those on capital employed suggests that actual inflation was higher than anticipated and that shareholders have been earning gains at the expense of lenders. From Table 5-1, it can be seen that there appears to have occurred a distinct upward shift in average effective tax rates in both the non-farm, non-financial and manufacturing sectors.

Econometric analysis of the real rates of return on capital employed attempts to identify the factors that had a statistically significant effect on their variations over the period 1947-76. Apart from a downward trend in the manufacturing sector, the only other variables that had significant effects in both sectors during the period are business cycle indicators. The rate of inflation is not found to be a significant factor in either sector as regards the real rates of return of capital employed.

Econometric evidence with respect to the real rate of return on net worth, for the period 1963-79, tells a similar story in the total non-farm, non-financial sector. In the manufacturing sector, however, the rate of inflation also had a significant negative effect on the real rate of return on net worth.

Chart 5-4

Nominal and Real After-Tax Rates of Return on Net Worth, Manufacturing Corporations, Canada, 1963-79



SOURCE Same as for Chart 5-2.

Table 5-1

Average Nominal and Real Effective Tax Rates on Corporate Income, Private Non-Financial Corporate Sector, Canada, 1963-78[1,2]

	Non-farm, non-financial		Manufacturing[3]	
	Nominal	Real	Nominal	Real
	(Per cent)			
1963-65	33.8	37.2	37.1	42.6
1966-70	33.3	35.6	39.1	44.0
1971-75	32.7	39.4	35.4	45.2
1976	34.9	43.1	36.6	47.5
1977	33.1	45.7	31.6	48.0
1978	30.7	44.3	29.6	47.2

1 Deferred taxes and royalties are not included as taxes.
2 Tax rates for 1976-78 are based on revised data.
3 Excludes the petroleum and coal products industry but includes forestry.

SOURCE Gérard Bélanger and Neil McIlveen, *Rate of Return and Investment Profitability*, Department of Finance (Ottawa: Supply and Services Canada, 1980).

Finally, data are presented, from 1963 to 1979, bearing on the relationship between the valuation by Canadian financial markets of the earnings potential of corporate assets and the replacement cost of those assets. This relationship in turn implies the relationship between rates of return actually earned by corporations and those required by financial markets. It may thus serve as an indicator of the directional impact of actual corporate earnings on the level of investment. As can be seen in Chart 5-5, between 1973 and 1978, there may well have existed an adverse relationship between the required and actual real rates of return. This probably had a negative effect on investment. A more favourable relationship seems to have developed as the 1970s drew to a close. This could be another indication that the corporate sector has by now learned to live with a chronically high rate of inflation.

*Disaggregated Analysis (H. Waslander)**

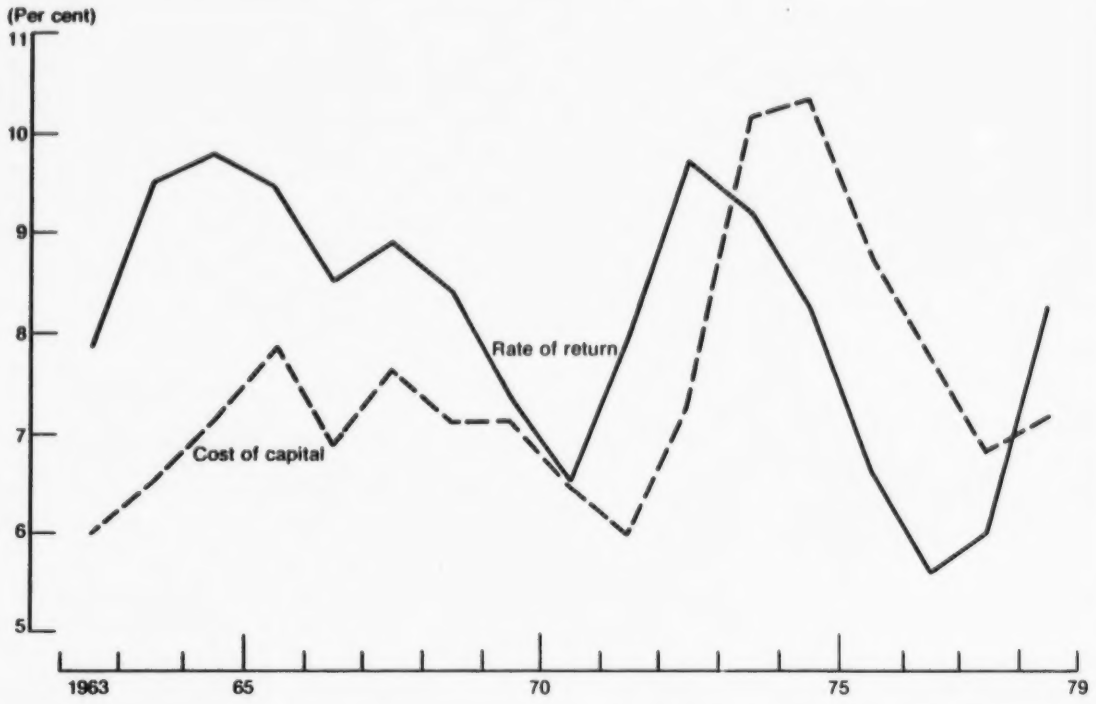
The analysis or real rates of return is extended by computations with the financial statements of 152 publicly traded Canadian corporations. These corporations are classified into nine industry groups in order that the presence of systematic differences between groups can be examined. The inflation adjustments are analogous, but not entirely identical, to those applied to the aggregate of the non-farm, non-financial sector.

To make interfirm comparisons possible and meaningful, the inflation adjustments (or inflation-induced errors) are expressed as a percentage of inflation-adjusted capital employed. The analysis focuses on average errors over the years 1976-78. The errors in operating income, consisting of the depreciation, cost-of-sales, and other working capital adjustments, display substantial variation between industry averages as well as among individual firms (Table 5-2). The differences between industries are particularly large for the cost-of-sales adjustment, reflecting the varying importance of inventories across industries. The variation among individual firms (around the group averages) is due in particular to the depreciation adjustment, which in turn is related to the age of fixed assets and the share of fixed assets in total capital employed. Small firms have larger errors, on average, than large firms. There

*The empirical results presented by Bert Waslander were drawn from research performed by John Bossons for the Economic Council's Sixteenth Annual Review, released in 1979. It has emerged that many of these results are in need of revision. Regrettably, however, Bossons' other commitments have prevented him from submitting the revisions before these proceedings went to the printer. The data presented by Waslander should therefore be regarded as preliminary.

Chart 5-5

After-Tax Rates of Return and Cost of Capital, Canada, 1963-79



SOURCE Bélanger and McIlveen, *Rate of Return and Investment Profitability*.

is a negative relation between the size of inflation-induced errors and the real rate of return on capital employed.

An examination of taxes, shown in Chart 5-6, reveals that the actual real tax rate has risen consistently over the period and has exceeded the statutory nominal rate in 1975-77. This is remarkable since the various tax exemptions and allowances make the average nominal tax rate rather considerably less than the statutory rate. The interindustry variation in effective tax rates is found to be considerable. The most consistently overtaxed industries are the several manufacturing sectors. The actual tax rate for manufacturing relative to the statutory rate is given in Chart 5-7. The least taxed industries are oil and gas, and pipelines and utilities. This reflects not only the favourable tax treatment of resource-based companies, but also the high depreciation rates and high cost-of-sales adjustment of manufacturing firms and their relatively low utilization of long-term debt financing.

An examination of profit distribution shows that the average real dividend payout ratio fluctuated around a slight upward trend during 1966-78. However, if the inflation-related gains accruing to common shareholders from minority interests and preferred shares are taken into account, the sum distributed appears to have declined as a share of the total available for distribution.

The analysis confirms what has been widely suspected – that is, that the distribution of inflation-induced errors and real effective taxation among industries and individual firms is far from even. The extent of misinformation contained in conventional accounting is enhanced by the lack of interfirm comparability. Furthermore, the after-tax real returns by sector appear to be inversely related to the size of

Table 5-2

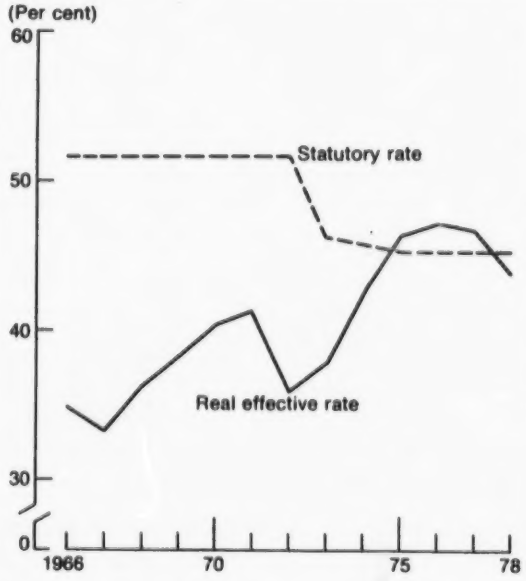
Inflation-Induced Errors in Operating Income, Selected Industries, Canada, 1976-78

	Ratios to capital employed		
	Average error	Range of errors	Mean absolute deviation from group mean
		(Per cent)	
Mining	7.9	2.7-13.0	2.5
Oil and gas	4.8	0.5-9.7	1.7
Metal products and building materials	6.3	2.3-10.2	1.6
Forest products and chemicals	7.2	3.1-27.7	2.5
General manufacturing	7.4	4.9-15.2	1.4
Food, beverages, and textiles	6.8	5.0-13.0	1.5
Merchandising	8.7	2.8-15.9	3.4
Transportation and communications	5.5	3.2-13.0	2.0
Pipelines and utilities	3.0	1.4-8.5	1.2
All industries	6.4	. .	1.9

SOURCE John Bossons, unpublished research performed as background to the Economic Council of Canada's *Sixteenth Annual Review*, 1979.

Chart 5-6

Real Average Effective Tax Rates and Nominal Legislative Tax Rates, 152 Firms, Canada, 1966-78



SOURCE Estimates by the Economic Council of Canada.

the inflation adjustments and to the level of effective tax rates. It follows that the tax system has unintended effects on income distribution and resource allocation in an inflationary environment. Inflation has additional, similar effects that firms either do not perceive or are unable to neutralize.

The Experience in Other Countries

by Daniel M. Holland*

Over the last half-dozen years, Professor Stewart Myers and I have been the U.S. team and co-ordinators of nine other country teams – Canada (represented by John Bossons and Abe Tarasofsky), West Germany, the United Kingdom, Sweden, Japan, Finland, Austria, Italy, and France – that have sought to develop "real" estimates of corporate profitability and, insofar as possible, returns to investors. While every country's evidence is not the same, they do exhibit common characteristics. I would stress that the estimates discussed today are being used solely for illustrative purposes, since they are currently in the process of revision. The final estimates could differ significantly. So any conclusion I draw must be regarded as tentative.

As can be seen in Table 5-3, in the U.S., U.K., and Sweden, there is the same divergence between nominal and real rates of return as in Canada. One difference between the U.S. and Canada is that the disparity was as pronounced ten years after the war as in the recent decade.

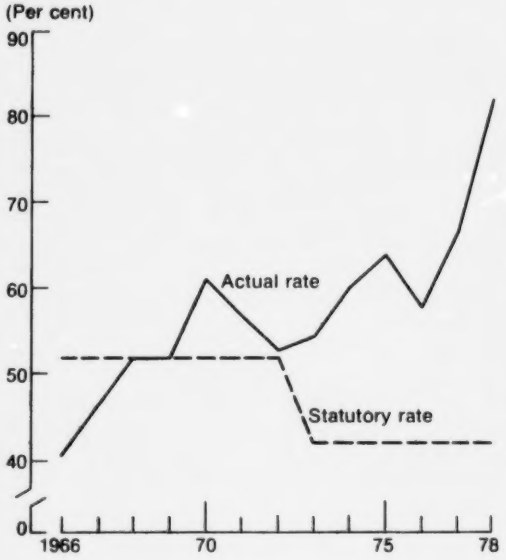
U.S. data are from the Department of Commerce, which provides estimates of capital stock and operating income. Both non-financial and manufacturing sectors are treated as giant firms. Main adjustments are for historical cost depreciation and accelerated write-offs. The inventory valuation adjustment is also very large in spite of the fact that most firms use LIFO inventory accounting. Interestingly, until 1974, the understatement resulting from accelerated depreciation was greater than the overstatement from historical cost depreciation, so the actual adjustment was positive.

Table 5-4 provides the adjusted data. The source of concern over declining rates of return can be seen in the four-year averages. The most striking thing about rates of return is the outstandingly good performance of the mid-1960s. If we make comparisons with the 1960s, we may be choosing an unusually favourable period as a starting point. Losses in the last decade have been more severe than in 1929.

**Professor, Sloan School of Management, Massachusetts Institute of Technology.*

Chart 5-7

Real Average Effective Tax Rates and Nominal Legislative Rates, 58 Manufacturing Firms, Canada, 1966-78



SOURCE Estimates by the Economic Council of Canada.

I have not dared to make estimates for the non-manufacturing sector, treating it as a residual of the non-financial sector and manufacturing. In Canada, there are some interesting questions about this other sector raised by the findings. Over most of the period, manufacturing in the U.S. had a higher rate of return than the other non-financial sector. In latter periods, manufacturing suffered higher effective tax rates. In Table 5-5, it can be seen that it is only recently that manufacturing companies have increased their market value debt ratio. Thus, they were not getting a tax break on debt.

The return to investors exhibits more volatility than the after-tax return on capital. But over the period from 1947-79, companies have earned about the same 8 per cent return after tax on investment as investors have before tax on a weighted average of stocks and bonds. A risk premium can be seen in manufacturing compared with the non-financial sector. This squares with the greater standard deviation of returns.

Table 5-5 shows Tobin's famous q – the ratio of the total market value of non-financial corporations and manufacturing corporations to their net plant and equipment valued at replacement cost. If q is greater than unity, it makes more sense to invest in new assets; if less than unity, to buy existing assets. A precise one is not that interesting because of our failure to include certain assets, but the movements in q are revealing. We see low q's during the recent period of unfavourable economic performance and high q's during the booming 1960s. In the 1930s, q's of a different order of magnitude were characteristic. In 1937, q was 2.

The capitalization rate, also shown on Table 5-5, is a rough measure of the return that individuals require. Its relative stability from 1953 to 1973 is impressive.

Eyeballing the data may not be the best way to do empirical research. Some econometric estimation produced interesting results. A regression of return on capital on a time trend showed a significant negative relationship. Including the percentage change in real GNP improved the explanatory power of the regression. Including inflation contributed very little. From 1970 to 1979, profits were roughly 2 per cent lower than predicted by the equation. For the equation explaining before-tax rate of return, inflation was not a factor. In contrast, inflation contributed significantly to the explanation of after-tax rate of return. This results from the positive relationship between tax rates and nominal profits.

Table 5-6 provides a comparison of after-tax return on capital for Canada, the U.S., Sweden, and the U.K. Several conclusions can be drawn for the non-financial corporate sector. First, in Canada, after-tax profitability has not declined over the long term. The most striking departure is the five-year burst of profitability from 1965-69. Second, the U.S. experience was similar but, over most of the postwar period until the recent decade, return on capital seemed to run at a somewhat higher level. Third, profitability in Sweden has also been trendless over the long run. Return on capital was at a lower level than in Canada or the U.K. and has plunged to an unprecedentedly low level in the last few years. Fourth, for the U.K., a long enough run of data is not available to generalize about long-term profitability. But returns have recently been lower than during the early 1960s, but whether that means they have been off the long-term trend line or not is impossible to say.

Comments

by Michel Proulx*

Business investment plays a critical role in affecting a country's economic performance in both the short

**Chief, Structural Analysis Section, Long Range and Structural Analysis Division, Department of Finance. The views expressed here are not necessarily shared by the Department of Finance.*

Table 5-3

Selected Examples of Divergence Between Nominal and Real Rates of Return, United States, United Kingdom, and Sweden, Selected Years, 1947-79[1]

Year	United States: Non-financial corporations return on capital		United Kingdom: Industrial and commercial companies rate of return in trading assets		Sweden: Publicly listed companies rate of return after taxes	
	Nominal	Real	Nominal	Real	Nominal	Real
			(Per cent)			
1947	26.4	14.3	..	..	..	..
1950	25.7	15.8	..	..	..	..
1955	20.1	14.6	..	..	..	..
1960	14.9	11.3	..	..	..	..
1965	19.1	16.4	15.8	11.2	..	..
1970	13.8	9.7	14.4	8.6	9.2	2.1
1971	14.5	10.3	15.1	8.8	7.8	0.7
1972	15.8	10.9	16.8	9.3	8.0	2.0
1973	17.4	10.8	19.8	9.1	12.3	4.6
1974	17.2	8.2	18.7	5.2	17.2	5.5
1975	16.2	9.0	18.5	5.3	11.2	1.2
1976	17.6	9.7	20.1	5.4	8.6	-1.2
1977	18.4	10.3	19.4	6.2	7.0	-6.1
1978	18.7	10.0	19.0	6.2	7.4	-0.2
1979	18.7	9.1	18.5	4.3	..	..

1 The estimates contained in this table are preliminary and are currently in the process of revision. Final estimates when available could differ significantly.

SOURCE Estimates prepared by Stewart Myers and Daniel Holland of the Sloan School of Management, based on data provided by the U.S. Department of Commerce, Bureau of Economic Analysis.

and longer term. As a component of final demand, it provides support to output and employment growth while, at the same time, it expands the supply potential of the economy, both directly in the form of additional capacity and indirectly in the form of higher productivity. This expansion in supply capacity helps restrain inflationary pressures as aggregate demand grows. During the second half of the 1970s, many industrial countries experienced a significant weakening in investment performance. The possibility that the high and accelerating rates of inflation recorded over much of the 1970s may have created significant divergences between reported and inflation-adjusted measures of investment incentives and, at the same time, may have interacted with the tax system to raise effective tax rates are two extremely important issues that need to be addressed in any attempt to understand the performance of investment over the past decade.

The Department of Finance has shared these concerns in several respects. In the Long Range and Structural Analysis Division, studies of the Canadian experience have been performed and are currently being undertaken. A paper on the *Rate of Return and Investment Profitability* was published in April 1980.

I will mention how results from our studies may differ from those presented, and will propose some different interpretations. A major divergence is that our information tends to support the view that the manufacturing sector in Canada may not have experienced an upward trend in real effective tax rates during the 1970s.

In analysing the data, it is important to keep in mind that the nature and type of inflation may have changed over the course of the 1970s. In this event, generalizations could be difficult to make. For instance, a wage or cost-push inflation may not mean the same thing for rates of return in some sectors or industries as inflation associated with changes in the terms of trade or relative price of energy. Also, the extent to which inflation was anticipated or unanticipated is an important dimension. This suggests that, when looking at what happened in the 1970s, the redistributive effects of inflation need to be examined in a broader context that takes into account the impact of inflation on the net financial assets position of various economic agents as well as the interaction of inflation and the tax system.

At Finance, we have used the same approach to the measurement of rates of return on capital, the capital maintenance approach, and inflation adjustments. So differences in empirical results likely stem from differing empirical definitions of variables and data bases, and differences in conclusions stem from differences in interpretations.

Table 5-4

Estimated Real Rates of Return for Manufacturing Corporations and All Non-Financial Corporations, United States, Selected Years, 1947-79[1]

Year	Manufacturing corporations				Non-financial corporations			
	Return to investors[2] (R)	After-tax return on capital (ROC-AT)	Effective tax rate (T)	Before-tax return on capital[3] (ROC-BT)	Return to investors[2] (R)	After-tax return on capital (ROC-AT)	Effective tax rate (T)	Before-tax return on capital[3] (ROC-BT)
	(Per cent)							
1947	-0.3	9.1	50.4	18.3	-4.4	6.7	52.7	14.3
1950	34.0	9.6	54.6	21.1	20.5	7.2	55.4	16.2
1955	30.8	9.0	51.8	18.6	22.2	7.3	50.6	14.7
1960	-6.6	6.9	49.0	13.6	-0.3	6.0	46.9	11.3
1965	16.1	13.0	40.0	21.6	10.3	10.4	36.9	16.5
1970	-4.9	5.5	43.4	9.7	-3.0	6.0	38.7	9.7
1971	11.0	6.6	41.7	11.3	9.7	6.5	37.2	10.3
1972	14.4	7.5	41.6	12.8	11.8	7.0	36.6	11.0
1973	-19.0	7.2	44.5	12.9	-19.0	6.6	39.4	11.0
1974	-21.2	4.1	52.0	8.6	-26.9	4.5	45.1	8.3
1975	26.1	5.1	41.6	8.8	21.4	5.9	35.2	9.1
1976	16.1	6.0	45.5	11.0	15.3	6.0	38.5	9.8
1977	-11.6	6.2	45.4	11.4	-7.4	6.5	37.2	10.4
1978	0.3	5.7	47.6	10.9	-1.0	6.2	38.6	10.1
1979	2.2	4.4	50.1	8.8	-0.2	5.7	38.3	9.2
Four-year averages								
1947-50	13.8	10.1	45.9	18.9	8.3	7.7	48.9	15.0
1951-54	22.1	7.3	57.5	17.3	16.1	5.7	57.3	13.3
1955-58	16.1	7.1	51.5	14.6	14.5	5.9	51.2	12.1
1959-62	7.8	7.6	47.7	14.5	6.1	6.6	45.5	12.1
1963-66	9.9	11.5	41.7	19.7	7.7	9.6	38.2	15.5
1967-70	3.9	8.4	42.9	14.6	2.5	7.7	38.9	12.7
1971-74	-3.7	6.4	45.0	11.4	-8.5	6.2	39.6	9.9
1975-79	6.6	5.5	46.0	10.2	7.0	6.1	37.6	9.8
Average for the period 1947-79								
Mean	8.1	7.9	47.2	15.0	6.8	6.9	44.3	12.5
Standard deviation	17.8	2.2	5.9	3.9	14.8	1.5	12.5	2.4

1 The estimates contained in this table are preliminary and are currently in the process of revision. Final estimates when available could differ significantly.

2 Annual returns are weighted averages of return on debt and equity held from the beginning to the end of the year, adjusted for the annual change in the consumer price index. Equity returns include both dividends and capital gains; debt returns consist of interest and capital gains.

3 The before-tax rate of return is the ratio of (i) before-tax operating income of non-financial and manufacturing corporations to (ii) the net replacement cost of inventory, plant, and equipment of non-financial and manufacturing corporations.

SOURCE Same as for Table 5-3.

While I agree with Mr. Tarasofsky that rates of return were depressed in the 1970s relative to the 1960s, and that the after-tax rate of return on equity capital surpassed the cost of equity capital in 1979, reversing the relationship prevailing over the 1974 to 1978 period, as a result of increases in the after-tax rates of return in 1978 and 1979, I do not agree with his interpretation that a continued trend into the 1980s of the 1979 relationship represents the corporate sector's response in learning to live with inflation. The situation is more complicated, and depends on economic conditions and the future behaviour of various economic agents.

Mr. Tarasofsky presented the Department of Finance's estimates of average nominal and real effective tax rates for the non-financial corporate and manufacturing sector. The original study showed real effective tax rates for the energy sector, which have risen significantly and contribute to the explanation of the tax rates for the whole non-financial corporate sector. There were two caveats attached to the original study: the first being the 1977 break in the Industrial Corporations Financial Statistics, which inhibits comparability; and the second being the extent to which aggregate losses distort effective tax rates. To gain an appreciation of the significance of

Table 5-5

Tobin's *q* Capitalization Rate and Market-Value Debt Ratio for Manufacturing Corporations and All Non-Financial Corporations, United States, Selected Years, 1947-79[1]

	Manufacturing corporations			Non-financial corporations		
Year	q^2	Capitalization rate (ρ)[3]	Market value debt ratio (mid-year)[4]	q^2	Capitalization rate (ρ)[3]	Market value debt ratio (mid-year)[4]
1947	0.83	10.95	-0.02	0.97	7.5	0.17
1950	0.64	14.92	-0.07	0.79	9.1	0.19
1955	0.95	9.43	-0.01	1.03	7.2	0.17
1960	1.06	6.54	0.03	1.07	5.7	0.17
1965	1.81	7.18	0.05	1.39	7.7	0.20
1970	1.12	4.93	0.17	0.91	6.7	0.29
1971	1.15	5.77	0.17	1.06	6.2	0.25
1972	1.26	5.95	0.16	1.16	6.1	0.24
1973	0.83	8.57	0.27	1.08	6.3	0.30
1974	0.36	11.54	0.56	0.86	5.7	0.38
1975	0.66	7.75	0.23	0.78	7.7	0.33
1976	0.69	8.67	0.20	0.85	7.3	0.31
1977	0.61	10.17	0.26	0.71	9.4	0.35
1978	0.56	10.22	0.26	0.62	10.4	0.38
1979	0.48	9.14	0.28	0.59	10.0	0.38
Four-year averages						
1947-50	0.65	16.1	-0.03	0.83	9.8	0.20
1951-54	0.66	11.3	-0.01	0.75	7.7	0.20
1955-58	0.88	8.1	0.01	0.95	6.3	0.17
1959-62	1.13	6.7	0.04	1.11	6.0	0.18
1963-66	1.51	7.7	0.06	1.36	7.2	0.20
1967-70	1.41	5.9	0.12	1.21	6.6	0.22
1971-74	0.90	8.0	0.29	1.04	6.1	0.29
1975-79	0.75	9.2	0.25	0.71	9.0	0.35
Average for the period 1947-79						
Mean	0.96	9.1	..	0.98	7.4	..
Standard deviation	0.38	3.5	..	0.24	1.6	..

1 The estimates contained in this table are preliminary and are currently in the process of revision. Final estimates when available could differ significantly.
2 The ratio of the total market value of non-financial corporations and manufacturing corporations to their net plant and equipment and inventories valued at replacement cost.
3 The ratio of operating income, i.e., profits plus interest, to the total market value of non-financial corporations and manufacturing corporations.
4 The ratio of the market value of debt to the market value of debt plus equity for non-financial and manufacturing corporations.
SOURCE Same as for Table 5-3.

this latter effect, we used the *Financial Post* data base and Professor Bossons' inflation adjustments, which incidently have been revised substantially from those presented by Mr. Waslander. This showed that average real effective tax rates for companies with positive net income would have increased slightly for the non-financial corporate sector as a whole from 1966-69 to 1974-79, would have increased substantially in resource-based industries (mining and oil and gas), and would not show any upward trend for non-resource industries as a whole and for the manufacturing sector. We confirmed these results using data from the annual corporate financial and taxation statistics, the same data base used by Mr. Tarasofsky, but after non-taxable Crown corporations had been eliminated. The results do effectively mask considerable variability in the experience of individual industries within the manufacturing sector, however.

Turning to the impact of inflation as estimated through regression analysis as done by Professor Holland and using the *Financial Post*-Bossons data base, we obtained results for Canada similar to Holland's for the U.S. – namely, that the rate of inflation only affects after-tax real profitability. The problem with this is that the explanatory variables may be measuring several things. For example, inflation from 1974 to 1979 coincided with a large increase in the relative price of energy. Whereas inflation should only affect after-tax profitability, changes in real energy prices can affect before-tax profitability as well. This was confirmed by statistical estimation that yielded the expected statistically significant negative coefficient for real energy prices causing the impact of inflation on real after-tax rates of return to become statistically insignificant. Thus, on the basis of the statistical evidence, it is difficult to

Table 5-6

Comparisons of After-Tax Return on Capital, Canada, United States, Sweden, United Kingdom, Selected Years, 1947-80[1]

Year	Canada		United States		Sweden	United Kingdom[2]
	Non-financial	Manufacturing	Non-financial	Manufacturing	Non-financial	Non-financial
	(Per cent)					
1947	5.7	8.9	6.8	9.0	..	..
1950	5.5	11.0	7.0	9.6	..	..
1955	5.8	8.8	7.2	9.0	3.5	..
1960	4.3	5.3	6.0	7.0	5.6	..
1965	7.3	8.0	10.4	13.0	5.4	7.3
1970	6.0	5.0	5.9	5.5	4.6	5.0
1971	5.4	5.9	6.4	6.6	3.6	5.8
1972	5.1	6.5	6.9	7.5	4.0	6.1
1973	6.7	8.1	6.6	7.1	6.5	6.7
1974	6.2	6.7	4.5	4.1	8.7	4.3
1975	5.2	4.6	5.8	5.1	4.7	3.9
1976	5.4	5.3	6.0	5.9	3.3	3.9
1977	..	..	6.5	6.2	0.8	4.4
1978	..	..	6.2	5.7	0.2	4.5
1979	..	..	5.6	4.4	..	3.4
1980	..	..	5.1	2.3	..	..

1 The estimates contained in this table are preliminary and are currently in the process of revision. Final estimates when available could differ significantly.
2 "Backward-looking" adjustment.
SOURCE Massachusetts Institute of Technology, *Proceedings* of a Conference on Rate of Return, held June 1981, at Cambridge (Cambridge, Mass.: MIT Press, forthcoming).

determine the relative importance of the factors tending to depress the real rates of return on capital.

Professor Holland noted that effective tax rates for the non-financial corporate sector in the U.S. tended to decline over time and ran at a lower level in recent years than those in Canada. This is surprising in the light of Canada's relatively strong investment performance and of similar real rates of return in the two countries during the past decade. Another interesting point made by Professor Holland is that the rates of return experienced, at least in the U.S. and Canada during the 1970s, did not on average differ much from those observed for a longer period than that covered by most Canadian studies (1963-66 to 1978-79), suggesting that the 1960s might have been a golden era.

A large number of questions can be raised with respect to indicators of incentives to invest and their measurement. One of the most important concerns the extent to which *ex post* average rates of return are indicative of *ex ante* marginal rates of return, the driving factor behind investment, particularly when major changes to the tax system are introduced.

Areas that deserve more attention in future work in Canada are the cost of capital, the relationship of observed intercountry differences in indicators of the strength or weakness of incentives to invest to the relative strength of the Canadian investment performance, and the redistributive effects of inflation among sectors.

6 Problems of Accounting for Inflation in Selected Sectors

Multinational Firms Operating in Jurisdictions with Different Reporting Rules

*by John Schoonover**

Alcan is a multinational company operating in a number of countries having different inflation accounting rules. Additionally, Alcan's shares are registered in the United States and, accordingly, Alcan has developed the inflation accounting information as required by FAS 33.

Compliance with inflation disclosure requirements for local currency accounts is primarily the responsibility of the affected subsidiary companies, as it would not be cost effective to centrally maintain an in-depth expertise for all the variations in individual country accounting requirements.

The FAS 33 requires two measurements of the impact of inflation on a company: i) the general rate of inflation and ii) the specific rate of inflation. The general rate of inflation (historical cost/constant dollar accounting) is relatively straightforward.

Development of the specific rate of inflation (current cost accounting) information required a new and different involvement by Alcan's subsidiaries. For materiality and cost effectiveness, Alcan chose to limit direct involvement to those major subsidiaries collectively accounting for some 95 per cent of our fixed assets and inventories. Constant dollar amounts were used as surrogates for current cost values for the balance of the subsidiary companies. Determination of current cost amounts for fixed assets required the most effort. Moreover, because of Alcan's capital intensity, the most significant current cost adjustments relate to fixed assets. Additionally, Alcan's major subsidiaries have had for many years techniques to measure the current cost of goods sold (excluding depreciation).

Most subsidiaries chose to use published indexes for the measurement of current cost values for buildings, machinery, and equipment, but there were a number of instances where functional pricing techniques were used. Both methods were applied on a reproduction cost basis; thus, there were no efforts to measure the current cost of a new asset and to adjust that cost for differences in "service potential."

The application of the "service potential" concept in determining the current cost of fixed assets is virtually unworkable in a large multinational company such as Alcan. To employ this concept, the replacement of an asset must involve an asset different from the one owned. This requires a company to develop its replacement intentions wherein a whole range of economic differences for available replacement opportunities must be considered. The number of parties to be involved in these replacement intention decisions, depending on the relative capital magnitude, could include many levels of management. In the real, actual day-to-day world, the level at which capital expenditure decisions are made are based on budgets and approval cutoff levels. Relatively minor capital expenditures are decided at the subsidiary level. Higher capital amounts move up the organizational structure to the area, region, Montreal office level, or the Board of Directors until the authorized approval level has been reached. Do the inflation accounting pronouncements really suggest that we use the same hierarchy of approvals to determine replacement intention decisions? If so, can this be considered an effective use of management time for a "what if" exercise?

There are also many problems in quantifying and costing out service potential differences, even when the intended replacement equipment is presently in place in another country. For example, how should allowances be made for differences in labour productivity? Why does the same equipment produce better results, productivity, and scrap loss rates at one location rather than at another? Is it differences in labour productivity/attitudes, is it differences in quality of supervision, or did unexpected anomalies find their way into the equipment?

*Assistant Chief Accounting Officer, Alcan Aluminum Limited.

How does a company attempt to make allowances for such potential differences for a "what if" exercise?

Alcan will strive to improve its measurement of the current cost values for fixed assets not only for external reporting requirements but also for use in a soon-to-be implemented internal inflation accounting system.

Revising estimated useful asset lives for future use in the internal inflation accounting system is also planned. The revised lives would be applied retrospectively – even for fully depreciated assets. Although this application of revised useful lives is not consistent with North American historical cost accounting conventions, we believe it is appropriate for our internal inflation accounting system. This approach has been built into the U.K.'s current cost accounting pronouncement. The U.S.'s FAS 33 apparently only permits use of different lives if the historical cost asset lives have been shortened in anticipation of inflation.

Regulated Industries

by J. Paul T. Clough*

Canada must rank well up in the league of the regulated. My company, Canadian Pacific Limited, was one of the first regulated. Regulated industries are exposed not only to the ordinary run of hazards of doing business, reporting results, and being taxed in an inflationary environment, but also to extraordinary ones as well, because of being regulated. They are not free to adjust prices immediately to recoup higher costs, and suffer from regulatory lag in rate adjustments with revenue foregone rarely recoverable. They also frequently face mandatory accounting procedures.

The best-known case of lengthy regulatory hearings is that of the communication companies. Airlines also suffer from regulatory effects, but the public has largely escaped the penalties. Trucking companies also have been affected, but the main factor limiting their response to inflationary pressures has been lack of traffic growth.

Despite the relative rate of freedom granted by the National Transportation Act, the major railways have the special problem of the Crow's Nest Pass Agreement grain rates. It is hard to think of any example of inflation-induced distortion that could match having to live with 1981 costs while charging no more than 1897 prices on over one-fifth of the volume of business done. To date, this has been borne by railway equity security holders. But obviously capital cannot be found for activities that do not meet their costs.

There are steps under way by the Canadian Transport Commission for a review of the cost of capital and capital structure for CP Rail. One of the nearly thirty major items for consideration is the "Current Value Cost of Capital," our proposal for handling the inflated cost of assets.

The actual techniques of regulation, and the methods and philosophies of the specific body that carries out the regulation, will naturally affect the ability to adjust to inflation. In trucking, where regulation is provincial, one is faced with a multitude of regimes, a typical Canadian solution. All jurisdictions except Alberta require a 30-day filing period before rates can take effect. This comes on top of the 30 days needed to prepare a submission, and, in some jurisdictions, 30 days required for approval, giving an overall lag of three months.

In the case of the air carrier industry, the statutory filing period for changes to domestic passenger fares and cargo rates is, with a few exceptions, 45 days. Generally, the air carriers seem to find the basic approach satisfactory, especially when it is recognized that the CTC approves fare increase filings at the beginning of the year on the basis of expected inflation for the year. The process, however, is time-consuming and cumbersome and most carriers would like some unregulated "zone of flexibility" for rate adjustments.

The CTC allows fare increases only for cost escalation, and fare reductions only for improved profitability. Because of market conditions, airlines cannot always implement fare increases that fully offset inflation, even if allowed. It then becomes difficult in the next year to have a fare increase approved on the basis of the earlier shortfall. Furthermore, the CTC does not allow increases on the basis of need for improved profitability or a higher rate of return on investment. I hope that, as a result of its review, the CTC will make some changes in these areas.

Regulated industries tend to be capital intensive and to have assets with very long lives. In inflationary times, surely, fixed assets must be desirable. Yet, in any discussion of handling inflation, fixed assets are deemed a burden because they cost so much to replace. This phenomenon is seen in all industries, but nowhere more than in the regulated group. Managements will not, or cannot, capitalize on the increases in the value of assets. In the regulated sector, this is in large measure explainable by regulatory constraints. But, in all businesses, the problem exists, and is in part a product of ignorance, and in part the result of a reluctance to face facts. The

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** Vice-President, Finance and Accounting, Canadian Pacific Limited.*

difficulties are increased by the lack of an agreed method of inflation accounting in Canada.

Even though in the accounting field there is not yet agreement on how to report results under inflation, there is no disagreement on the nature of the problem. Historical cost depreciation is inadequate to reflect accurately in product costs the wastage of productive capacity. An example in CP Rail is a freight car that now costs $52,000 to replace upon retirement compared with its cost of $7,500 on acquisition 30 years ago.

Given an awareness of the problems of inflation in a non-regulated environment, certain remedial policies can be implemented. They are primarily possible in the areas of product pricing, capacity decisions, and dividend policy. CP Rail has adopted the use of replacement cost accounting for internal costing purposes. After a lengthy educational process, marketing and management staff have learned to utilize the information for rational pricing practices and for capital allocation. The procedures were developed internally without waiting for something to surface in generally accepted accounting principles.

The overpayment of taxes in an inflationary period is well-known. The use of capital cost allowances, and investment tax credits, is ill-understood. Politicians and the public confuse timing differences and investment incentives with some form of adjustment for the inflated cost of replacing assets.

Accelerated capital cost allowances give rise to deferred income taxes. Regulated companies face special problems with regard to deferred income taxes. Some regulators regard deferred taxes as a perpetual cost-free loan. Other regulators, while acknowledging that deferred taxes may eventually have to be paid, are unwilling to allow a return on them or discount them in some way. CP is currently trying to teach regulators to respect the aims of government tax policies that use capital cost allowances and investment tax credits as investment incentives.

The regulatory process in CP's businesses is directed solely to historical cost-based assets, and hence capital structures derived therefrom. CP works in segments of the market where for one reason or another returns have been depressed. Many would ask why, if the allowable return on historical cost is not even being earned, is there concern about the lack of more sophisticated measures? The point is that, if all suppliers in the market were aware, they might adopt better policies.

CP assisted the public to understand this whole problem by adopting fully segmented reporting many years ago. However, in the inflation field, while we have given words of warning, we have presented no figures.

We did show as required some replacement cost information in our annual 10-K report to the U.S. Securities and Exchange Commission. Many pages of explanation were necessary, so hedged round with qualifications that no thinking person would bother reading them. Before we present figures to our shareholders, we want to be sure we have a good solution. There are U.S. methods, a U.K. method, and proposals for Canada. It would be well worth some additional delay to Canada to ensure that the standards developed for inflation reporting will produce figures that are both understandable and meaningful.

It is important also to try to ensure that the figures do not have built into them the seeds of their own, or even our, destruction. The easy answer to inflation is lots of debt and some methods of inflation reporting give lots of "credit" for this. This is not a "recipe for survival."

The basic problems of regulated industries are those of all businesses, with regulatory problems added as a layer on top. Solve the problems for business in general and, except for the inevitable lag, you would largely solve them for regulated businesses. The solutions, however, would be more difficult to implement.

Financial Institutions

by Michael A. Mackenzie*

The purpose of my presentation is to address two interconnected questions as they relate to banks and trust companies in Canada. First, to what extent are the financial positions and earnings reported under existing accounting rules providing misleading information because these rules do not provide for specific adjustments to record the impact of changing price levels under conditions of inflation? Second, what are the kinds of adjustments that would provide accurate and relevant information as to the impacts of inflation and would permit users of financial statements to correct for any failures to measure specifically these impacts?

Dealing with these questions requires first a review of the uses of financial statements of banks and trust companies by management, depositors, lenders, equity investors, and regulatory agencies.

It also requires a discussion of the impact on operations and finances. There is significant asset and revenue growth from general inflation alone, as can be seen in Table 6-1. Managing interest spreads

*Partner, Clarkson Gordon.

and interest rate risk is becoming increasingly difficult. Pressures on liquidity are increased particularly since bank securities portfolios long regarded as a source of liquidity have lost market value. Effective cash flow management is the key to liquidity rather than holding readily marketable securities. Increasing risks are associated with very large corporate loans taken out to finance major projects. Banks and trust companies generally hold monetary assets in excess of monetary liabilities. The purchasing power of their net asset positions is being eroded with inflation. There is strong pressure to increase retained earnings to counteract this erosion. There is a gradual but steady decline in equity capital to asset ratios as shown in Table 6-2. There has been a general increase in the need to raise large amounts of long-term debt and equity capital and this need will increase as inflation continues. Regulators and the market are increasingly concerned about capital adequacy. And earnings may be overstated to the degree that the current costs of premises and equipment and current rental levels exceed historical costs.

Table 6-1

Impact of Inflation on Operations of Banks and Trust Companies, Canada, 1976-80

Growth rates, 1976-80	Banks		Trust companies	
	Assets	Income	Assets	Income
	(Per cent)			
Inflation	9.6	9.2	9.8	9.3
Real	12.5	8.8	6.8	1.4
Total	22.1	18.0	16.6	10.7

SOURCE Estimates by Michael Mackenzie, based on data from the Bank of Canada.

Table 6-2

Impact of Inflation on Erosion of Capital of Banks and Trust Companies, Canada and United States, 1976 and 1980

Institutions	Erosion of equity to assets		Erosion of equity plus debt to assets	
	1976	1980	1976	1980
	(Per cent)			
Canadian banks	3.5	3.0	4.4	3.8
Canadian trust companies	6.1	5.4	..	..
Large U.S. banks	3.8	3.4	..	..

SOURCE Estimates by Michael Mackenzie, based on data from the Bank of Canada and U.S. Department of Commerce.

Third, forecasts of earnings required are needed in order to maintain adequate capital under continuing inflation. The problem of capital maintenance is becoming very serious to both management and the market. A continuation of rapid asset growth would involve major capital requirements over the next five years, as indicated in Table 6-3. There is real concern that banks and trust companies will need to limit their growth in the next few years. Concern has also been expressed by some bankers that any requirements to publish inflation-adjusted results may make it more difficult to raise new capital.

Table 6-3

Future Capital Requirements of Banks, Canada, 1981-85[1]

Annual asset growth	Earnings at 0.55 per cent of assets		Earnings at 0.70 per cent of assets	
	Equity	Debt	Equity	Debt
	(Billions of dollars)			
15 per cent	..	1.1	..	..
20 per cent	3.6	3.3	1.3	3.3
25 per cent	7.2	4.5	4.8	4.5

1 The first six months of 1981 would require $900 million in new long-term financing.

SOURCE Projections by Michael Mackenzie, based on data from the Bank of Canada.

Fourth, an appraisal of the capacity of conventional financial statements is needed to provide realistic information as to financial positions and earnings under conditions of inflation. The annual reports of most banks and trust companies set out in the financial statements and supplementary data a great deal of useful data relating to how well the institutions are doing under inflationary conditions. More specifically, annual reports contain information on liquidity, interest margins, asset and liability maturities, interest rate sensitivity, and location of risks. It is possible to use these statements to determine changes in capital-to-asset ratios and to make useful comparisons between different institutions. In Canada, with the exception of the Toronto-Dominion Bank, no inflation-adjusted figures are presented to show growth in assets and revenues distinguished between growth resulting from general inflation and real growth in constant dollars. No Canadian financial institutions publish either current cost information on occupancy and equipment costs, or the amounts required to be reinvested each year to preserve the purchasing power value of net monetary working capital.

Fifth, descriptions of alternative approaches to accounting used to describe the specific impacts of

inflation are needed. In the U.S., inflation-adjusted information is required by FAS 33 and includes general purchasing power restatements over five years of the purchasing power gain or loss on net monetary items, restated revenues, income, dividends, and per share stock market values. Where significant, depreciation is shown on a current cost basis. Examples of the adjustment for four U.S. banks is provided in Table 6-4. In the U.K., current cost balance sheets and income statements are required to be prepared. These accounts incorporate general price level adjustments to net monetary working capital, current cost depreciation, and the extent to which long-term debt shields shareholders from declining purchasing power and increases current cost depreciation.

Table 6-4

Reported and Inflation-Adjusted Dividend Rates for Four Major Banks, United States, 1976-80

Institution	Dividend rate	
	Reported	Adjusted
	(Per cent)	
Bank 1	30	41
Bank 2	31	145
Bank 3	35	49
Bank 4	32	52

SOURCE U.S. Department of Commerce.

We note that, as a general rule, neither in the U.S. nor in the U.K. is there any evidence as to the uses of this information. There is little evidence, indeed, of any desire either from the perspective of management or investors to see inflation-adjusted financial information.

On the other hand, the publication of this information does help focus attention to the problems created by inflation. More specifically, real growth rates are substantially less than indicated by reported information. There is a significant erosion of capital in real terms, which needs to be covered by appropriations of earnings if capital is to be maintained in real terms. And income may be overstated when it does not include current cost depreciation and rentals.

I believe there is some experimental value in publishing this information. There are, however, some differences between the U.S. and U.K. approaches that may create confusion and make comparisons difficult. On the other hand, the publication of earnings restated to reflect the impact of inflation may assist these institutions in justifying their earnings to the public.

The Canadian Position

There is no present requirement to publish inflation-adjusted information in Canada. The CICA issued a current cost accounting exposure draft in late 1979 that specifically excluded financial institutions.

The Toronto-Dominion Bank in 1980 published supplementary data that identified compound growth rates for the five years from 1976 to 1980 broken down between inflation-caused growth and real growth. It also published restated earnings, dividends, and share market values over the five years.

In early 1981, a task force of the Canadian Bankers' Association reported on its review of the 1979 exposure draft of the CICA on current cost accounting. This report observed that the most significant effect of inflation on banks was the gradual erosion of capital. It concluded that it was inadvisable to apply current cost accounting rigidly to banks. It did, however, suggest that experimentation was desirable. Accordingly, it proposed the publication of supplementary information on a basis roughly comparable with that required in the U.S. It also recommended disclosures of loan and investment mix, liability mix, and interest rate risk reflecting maturities.

Summary of Conclusions and Recommendations

With adequate footnote disclosure, the historical cost financial statements are capable of providing a great deal of information that permits users to: assess the institution's ability to manage its earning assets and deposit liabilities in order to maintain interest margins or spreads; assess the exposure of the institution to the risk of fluctuating interest rates that are characteristic of inflation; identify the degree to which the institution's capital is being eroded over a period of years (reasonably accurate comparisons can be made as to the adequacy of the capital ratios maintained by different institutions); and forecast reasonably well future earnings, cash flows, and expected future requirements for additional capital funds from the capital markets.

I believe it would be useful to present inflation-adjusted five-year growth rates in order to identify real growth rates. This is not clearly presented either in the U.S. or the U.K. The Toronto-Dominion Bank report provides a useful model.

It is also recommended that management provide a description of the eroding impact of inflation on capital and the amount of earnings needed to be

reinvested each year in order to protect the purchasing power of equity capital. The significance of this information should be explained. There should be some experimentation and research into how best to compute and display this information.

Management of financial institutions should examine the degree to which earnings may be overstated through failure to record premises and equipment depreciation and rentals on current cost basis. If significant, this information should be published.

Supplementary information on asset and liability maturities and on interest rate sensitivity using formats similar to those widely employed in the U.S. should be included. Such information should be designed to assist users to more accurately predict near-term future earnings, and to appraise the institution's liquidity in terms of expected cash flows.

The main focus of these presentations should be to improve the ability to appraise capital adequacy and to predict the levels of retained earnings, reserves, and outside financing needed to maintain capital in the light of trends in both inflationary growth and real growth.

Comments

by Alphonse Riverin*

An adequate knowledge of income and of the data that contribute to its measurement are the basis of economic decisions. We have known for a number of years that our traditional accounting methods cannot offer that knowledge but have to be thoroughly modified in order to cope with economic reality.

Many purposes are served by the measurement of profit: income tax levies, dividend distribution, the justification of prices, business decisions, computation of national accounts, and investors' decisions.

To be useful, a definition of income should satisfy the objectives for which it is measured, be measurable, and correspond to the idea commonly accepted by those who use it. A definition of income taken from the English economist J. R. Hicks satisfies these criteria. It draws the important distinction between *ex ante* and *ex post* income, the former being a forecast of future income and the latter a measure of past income.

Unfortunately, in an effort to protect objectivity, rigid principles have been adopted to give the measurement of profits apparent precision. However, in a dynamic world, this has caused problems. Accountants may be held partially responsible for price instability and for the amplitude of cyclical fluctuations. In allocating historical costs to current revenues, they have constantly showed too high profits in inflationary periods, thus artificially stimulating economic expansion and generating inflation. With higher profits, unions will necessarily ask for increased wages.

Present accounting methods may be responsible for an unbalanced distribution of funds among business firms. Income taxes will be too high or wrongly allocated. Businesses may have to pay taxes or dividends out of funds required to maintain their earning power. This may be less of a problem for big business. But I looked at Alcan's annual report for 1979 and found that profits from 1975 to 1979 are translated into losses in 1975 and 1976 and much lower profits thereafter by inflation adjustment, with the differences increasing with higher inflation. Mr. Schoonover told us that "specific inflation for their facilities exceeded general inflation." I agree with Mr. Schoonover that inflation has caused companies to keep existing assets longer, thus hampering productivity.

Returning to the Hicksian *ex ante* definition of income, it must be admitted that it cannot be measured with accuracy because of the impossibility of forecasting precisely. If we cannot do this, we should at least present financial results that reflect what has actually happened. I strongly believe that the necessary adjustments should be made with specific indexes for each industrial sector and not with a general price index.

**Professor, École nationale d'administration publique, Université du Québec à Québec.*

7 Inflation-Induced Distortions in Financial Reporting and Taxation in the Energy and Mining Sectors

Energy and Mining Sectors

*by Keith J. Brewer**

This paper presents the quantitative results obtained by making certain inflation adjustments to energy and mineral industry balance sheet and income statement information. Inflation adjustments are carried out in order to obtain better measurements of distributable operating profits. Adjustments are made for depreciation and depletion, inventories, and net debt.

The adjustments, and adjusted profits expressed as a percentage of profits before taxes, for metal mines are shown in Table 7-1. As can be seen, there is no easy way to predict the degree of distortion in any particular year. The magnitudes of the adjustments increase, of course, due to the acceleration of inflation, but there is a change in the relative importance of opposing adjustments. In the mid-1970s, there were years during which the gain on debt more than compensated for the loss on depreciation. Part of the reason for the swings in the relative size of the adjustments is the cyclicity in reported profit levels, which is itself a direct result of fluctuating world mineral prices. This contrasts with the situation in the manufacturing sector, where reported profits are much more stable and the overstatement of profits due to inflation grows more steadily as a consequence.

Table 7-1

Inflation Adjustments as a Share of Reported Profits Before Taxes of Metal Mines, Canada, Selected Years, 1963-80

Year	Inventory valuation	Gain on net long-term debt	Gain or loss on other working capital	Depreciation and depletion	Adjusted profit before taxes
			(Per cent)		
1963	-2	2	-2	-4	94
1970	-3	6	-4	-7	92
1973	-6	12	1	-11	96
1977	-10	24	8	-56	66
1978	-17	14	5	-40	62
1980	-4	7	-1	-18	84

SOURCE Calculated by Keith J. Brewer from industry-aggregate financial statements contained in Statistics Canada, *Industrial Corporations, Financial Statistics*, Statistics Canada cat. no. 61-003, quarterly.

In 1980, as can be seen in Table 7-2, the reported profits of the mineral fuels sectors are only slightly misrepresented, and this is primarily due to the gain on net long-term debt, which nearly compensates for the depreciation loss. Manufacturing as a whole has inflation-adjusted profits of only 72 per cent of reported profits. One of the principle reasons for the difference between the manufacturing and resource sectors is the larger misstatement of inventory values in manufacturing because of the prevalence of FIFO valuation methods and the larger inventories, at least during 1980.

Table 7-2

Comparison of Inflation Adjustments as a Share of Reported Profits Before Taxes, Mining, Manufacturing and Energy Sectors, Canada, 1980

Industry	Inventory valuation	Gain on net long-term debt	Gain or loss on other working capital	Depreciation and depletion	Adjusted profit before taxes
			(Per cent)		
Metal mines	-4	7	-1	-18	84
Other mining	-2	7	-7	-29	69
Primary metals	-15	14	2	-26	75
Manufacturing	-22	11	5	-22	72
Energy	-11	8	1	-17	81
Mineral fuels	-1	15	2	-21	95

SOURCE Same as for Table 7-1.

*Director, Resource Strategy, Resource Strategy and Economic Analysis Branch, Department of Energy, Mines and Resources.

Opponents of inflation accounting sometimes cite the 1960s as a period when, on account of low inflation, conventional financial statements did convey accurate information. But, as Table 7-3 clearly demonstrates, distortion due to inflation is uniform neither across different industry sectors nor over time, and it is incorrect to assume otherwise.

Table 7-3

Comparison of Inflation-Adjusted Profits as a Share of Reported Profits Before Taxes, Mining, Manufacturing, and Energy Sectors, Canada, Selected Years, 1966-80

Industry	1966	1973	1978	1980
		(Per cent)		
Metal mines	89	96	62	84
Other mining	92	90	64	69
Primary metals	91	72	65	75
Manufacturing	89	81	69	72
Energy	86	66	73	81
Mineral fuels	101	80	86	95

SOURCE Same as for Table 7-1.

The before-tax return on total capital employed, shown for 1980 in Table 7-4, is a common measure for assessing how well funds are used in different industries. The real return was uniformly about 10 percentage points less than the nominal. On this basis, metal mines and energy companies, whose operations are primarily concerned with mineral fuels and the products of petroleum and coal, would appear to be among the sectors making the best use of the economy's investment resources. One year's evidence is misleading, however. In 1977, metal mines had the lowest real return due to poor market conditions. Evidently, one-year comparisons are not adequate when comparing performance between industry sectors, and a number of years' averages are required to even out cyclical variations.

Table 7-4

Comparison of Nominal and Adjusted Return on Capital Employed Before Taxes (but After Royalties Paid to Provincial Governments), Mining, Manufacturing, and Energy Sectors, Canada, 1980

	Return on capital		
Industry	Nominal	Adjusted	Difference
		(Per cent)	
Metal mines	24	14	10
Other mining	20	9	11
Primary metals	18	8	10
Manufacturing	19	10	9
Energy	23	13	10

SOURCE Same as for Table 7-1.

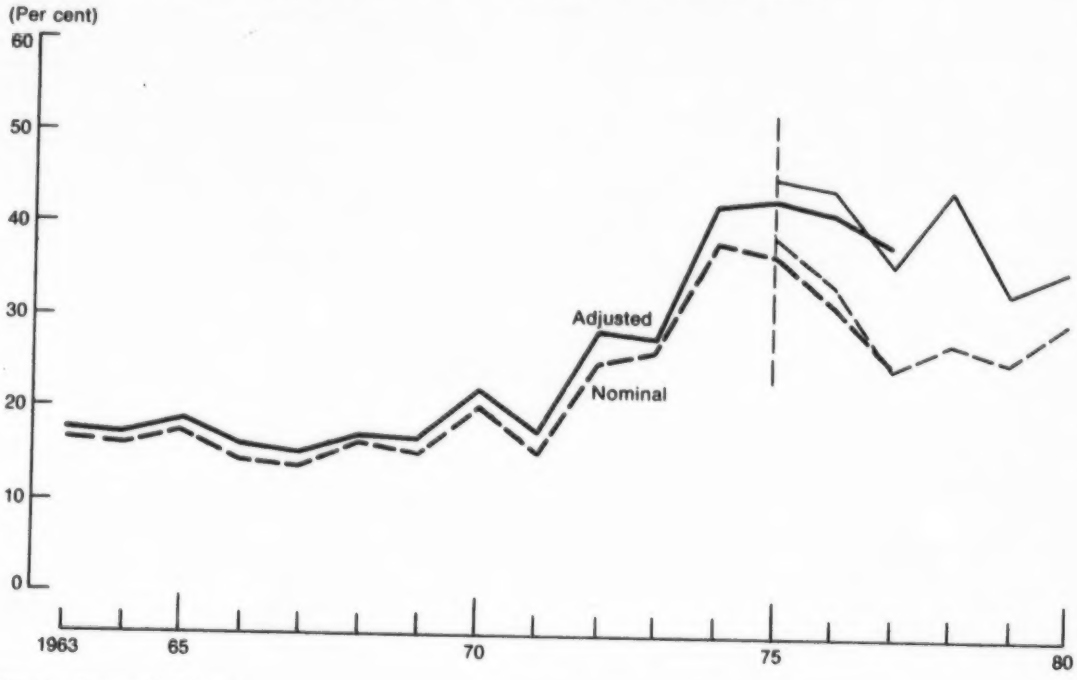
It is accepted that, when account is taken of inflation, companies are shown to have higher effective tax rates and higher dividend payouts. For manufacturing industries, the nominal effective tax rate in 1980 of 27 per cent becomes 38 per cent in inflation-adjusted terms. Similarly, whereas nominal dividend payout was 33 per cent, in real terms it was more like 53 per cent. Nevertheless, the distortion, although increasing over time, has been fairly stable when viewed on an aggregate basis. A more revealing picture emerges when we focus on an individual sector – metal mines – displayed in Charts 7-1 and 7-2. Tax rates (including mining taxes) have risen over the 1970s, but the effective rate in 1980 was still below that of manufacturing. As well, companies paid out dividends up to the mid-1970s in a stable fashion. The lower effective rates in 1973 and 1974 occurred not because dividends were reduced, but rather because the total profit for these years was higher. Profits fell drastically in the latter part of the 1970s due to product price falls, and companies did cut dividends, but not enough to prevent inflation-adjusted payout ratios from exceeding 100 per cent.

Some of the preoccupation with effective tax rates is generated by the belief that the revelation of higher real rates will somehow support the case for lower taxation all around. Perhaps a more realistic expectation would have to relate to the intercorporate distribution of the total business tax burden, rather than its average level. In addition, differential nominal and real tax rates are related to tax breaks. The effective real tax rate in manufacturing was fairly constant over the 1960s and 1970s at about 40 per cent. This was achieved as a result of tax reduction schemes. Increases in resource taxation have raised the effective real tax rate in energy and metal mines to approximate equality with manufacturing. It cannot really be stated that nominal effective tax rates conveyed distorted information about relative tax burdens, because the degree of understatement has been fairly uniform over the past five years at 8 to 10 percentage points.

There are several factors that determine the relative severity of inflation in distorting financial statements. Most important is the inflation in prices of capital goods. In this study, an effort is made to use those price indexes that most closely approximate the capital goods price changes that did occur. The consequence of using different indexes is significant. For example, if the consumer price index is used, instead of the index for petroleum and coal, there is a difference of 22 per cent in estimated value over the 1964 to 1980 period. Furthermore, differential asset ages have a significant impact on the adjustments. For instance, in primary metals, the age of assets

Chart 7-1

Nominal and Adjusted Effective Tax Rates, Metal Mines Sector, Canada, 1963-80



SOURCE Same as for Table 7-1.

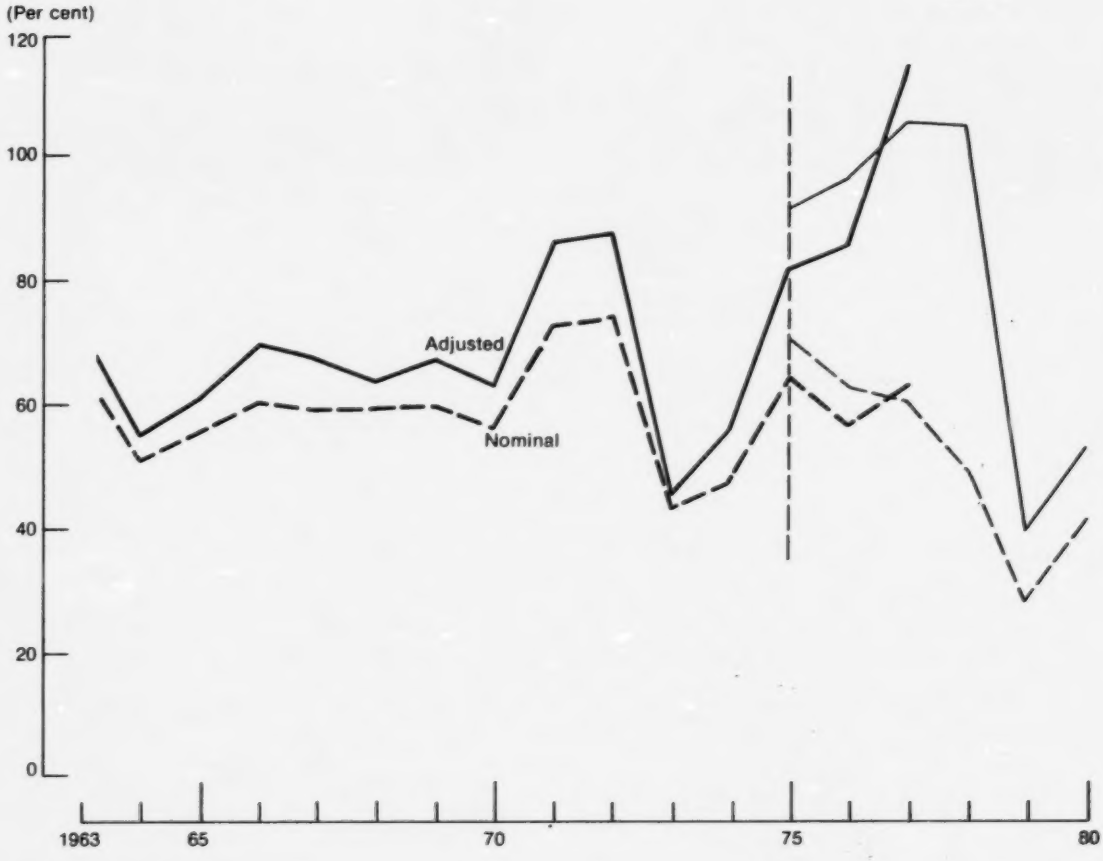
above 25 years means that the value of assets is heavily understated by conventional accounting. As well, differential debt ratios are significant. The 31 per cent debt-to-asset ratio of energy from 1962 to 1969 was the reason for an inflation adjustment of 15 to 20 per cent of reported profits in those years. And, in the non-energy mineral sector, managers responded to depressed conditions by significantly reducing debt ratios after 1974; nevertheless, the debt "gain" to profits was still 27 per cent in 1975 for metal mines.

I will briefly mention the inflation adjustments that were made for a resource company's depletable assets – namely, its ore, or oil and gas, reserves. Depletable assets have been treated as if they were an extention of fixed assets such as buildings and equipment. This method implicitly assumes that the cost of acquiring reserves is escalating at the same rate of inflation as the cost of other fixed assets. The assumption is close to the truth in the case of some non-fuel minerals where the real cost of new supplies is roughly constant, but it is probably not correct for new oil supplies. The practical difficulty of finding a relevant price index for depletable assets is emphasized time and time again in resource company annual reports and in their 10-K reports filed with the U.S. Securities and Exchange Commission. The legitimate argument is made that each orebody or oil or gas well is unique – which only compounds the problem at the industry-aggregate level.

Resource companies usually use either the full cost or the successful efforts method to account for expenditures on exploration and development. Under "full cost," all exploration and development expenditures, including dry holes, are capitalized and amortised over the production horizon whereas, under successful efforts, exploration and development outlays leading to dry holes are expensed. The full cost method improves profits in the earlier years and is favoured by small companies. Large companies with production income tend to use the successful efforts method. The expensing of much of the cost of

Chart 7-2

Nominal and Adjusted Dividend Payout Ratio, Metal Mines Sector, Canada, 1963-80



SOURCE Same as for Table 7-1.

exploration that this entails will cause a significant downward bias to reported profits and the balance sheet value of natural resources, which will only become worse following inflation adjustment.

We should not mix the concept and measurement of what happened in the past with what is likely to happen in the future. This may apply to manufacturing in equilibrium, but it is far from the truth for resources. As a way of measuring the underlying true values of non-renewable resources, the use of reserve recognition accounting, whereby the value of an asset is represented by a forward-looking estimation of value is a promising alternative approach to that of historical cost, price level adjustment.

Oil and Gas Industry

by John M. Boersema*

Attempting to account for inflation in the oil and gas industry is a bottomless bog into which only the unsuspecting novice or the most intrepid accounting

**Accounting Research Department, Shell Canada Limited.*

standard setter would voluntarily embark. To grasp why, it is necessary to understand the two basic problems faced by this sector in its conventional accounting.

In the first place, the conventional financial statements are unable to provide information on results that is of vital interest to the users of these statements, but instead are only able to provide information on what is spent. The most significant event in oil and gas exploration is the discovery of oil and gas. Conventional accounting methods are unable to measure and report on discoveries. However, there is no necessary relationship between the costs incurred (on which these methods do report) and the value of reserves found.

In the second place, within conventional accounting methods, two generally accepted alternatives have developed: successful efforts and full costs. Under successful efforts, only those exploration costs relating to successful wells are capitalized and charged to earnings over time as reserves are produced, while all costs related to dry holes are deducted from earnings immediately. In contrast, under full costs, all exploration costs are capitalized. Under these two methods, similar facts are accounted for in different ways, so the results reported by companies using the different methods are not comparable.

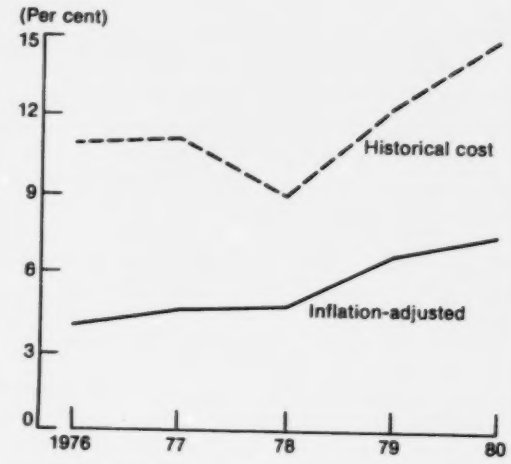
Some indication of this divergence can be illustrated by the facts that, when BP Canada Limited changed from full costs to successful efforts in 1978, net earnings decreased by 12 per cent and net assets by 14 per cent, and that Canadian Occidental Petroleum Ltd. in the same situation in 1977 showed a decrease in earnings of 13 per cent and net assets by 33 per cent. A 1979 survey by Price Waterhouse of 30 of the largest companies lists one-third including all the major integrated companies as using successful efforts, and two-thirds as using full costs.

When it is attempted to superimpose a system of inflation accounting on this already fragile base, we go into the bottomless bog. One possible solution, general price level accounting (GPLA), has been used by Shell Canada Limited for supplementary reporting since 1974. GPLA is practicable and as objective and comparable between companies as the underlying historical cost statements. It should meet the same objectives as conventional statements – whatever they may be – except that the results will not be distorted by the change in purchasing power of the dollar due to inflation.

That GPLA is able to give an indication of the magnitude of the distortion introduced by inflation is evident from Shell's results. Although on a traditional basis Shell's 1980 net earnings were $355 million, our inflation-adjusted earnings were only $246 million, or 30 per cent less. While our return on capital employed was a healthy 14.5 per cent, on a GPLA basis it was only 7 per cent – less than half. The effect on our rate of return over the last five years can be seen in Chart 7-3.

Chart 7-3

Comparison of Historical Cost and Inflation-Adjusted Return on Capital Employed, Shell Canada Limited, 1976-80



SOURCE Shell Canada Limited.

As to current cost accounting, it reminds me of an adaptation of *Alice in Wonderland* first put forward by R. A. Rayman. It has the Accounting Standard Setting Committee approaching the Cheshire Cat for guidance in making a recommendation on inflation accounting. Since the Committee tells the Cat that it doesn't much care what the accounts mean, it is advised by the Cat that it doesn't much matter which method of inflation accounting is recommended.

The objective of current cost accounting as proposed in the CICA exposure draft is to measure the current costs of assets with "equivalent service potential:" It seeks to reflect the impact of specific price changes on the results of a company. While many objections can be brought against this exposure draft, for present purposes, its principal failing is

that it is irrelevant and impracticable for the oil and gas resource sector. Oil and gas reserves are unique, finite, depleting resources that will not be replaced in kind. Insofar as they are replaced, it will be in different locations with different characteristics, at significantly higher cost. Measuring the current cost of replacing the service potential of these reserves is impossible. Moreover, since costs are not indicative of value, the current cost, if obtainable, would not be indicative of current value or future cash flows and, as such, would be of questionable utility.

Current cost estimation by use of specific indexes, the only practical way, represents, at best, the cost of repeating at today's prices the same acquisition, exploration, and development carried out in the past. Moreover, sufficient indexes are not currently available. For instance, no index exists for intangible drilling rights. Also, it is difficult to validate indexes, and it takes up scarce managerial time that could be better spent in finding oil and gas.

These reservations notwithstanding, we have prepared an approximation of the impact of current cost accounting, which is shown along with the comparable historical cost and GPLA figures in Table 7-5. In 1980, our "current cost income attributable to common shareholders" as calculated according to the CICA exposure draft would have been $65 million – less than 20 per cent of the related historical cost amount. However, other calculations such as those under FAS 33 are also possible. The FAS 33 in addition to the main "income from continuing operations" requires separate disclosure of two other items: one, the purchasing power gain on monetary items; and two, the increase in the current cost of inventory and property, plant, and equipment. To the extent that this increase exceeds the general price level, it can be considered a gain. These possible alternatives illustrate the controversy and lack of consensus that currently exists. Given the suspicion with which oil company profits are currently viewed, would anyone accept such revised numbers?

The solution to the problem appears to be to provide additional useful supplementary disclosure. Also, reserve quantity data currently being provided is useful, although more comparability is desirable in Canada. While the inherent uncertainty of recoverable quantities of reserves militates against the development of a full-blown system of value accounting as envisioned by the SEC in the U.S., continued disclosures of this type are likely to be forthcoming. The FASB is currently working on a comprehensive disclosure package.

No improvement in the main accounting system is likely to be possible. No choice between successful efforts and full costs is likely in the foreseeable future. Comparable useful supplementary disclosure is likely to obviate the need for any current cost type of disclosure for the oil and gas sector. To provide some overall company-wide information on the impact of inflation, the GPLA alternative would likely be satisfactory.

Table 7-5

Comparison of Current Cost Accounting Methods of Calculating Income, Shell Canada Limited, Year Ended December 31, 1980

Calculation	Amount	As a share of historical cost
	($ million)	(Per cent)
Historical cost	335	100
Adjusted for general price-level changes	226	67
Current cost accounting - CICA, total	65	19
Current cost accounting - FAS 33	..	..
Income from continuing operations	97	29
Purchasing power gain on monetary items	16	..
Increase in current cost of inventories and property, plant, and equipment	603	..
Less effects of increase in general price level	(354)	..
Total, FAS 33	362	108

SOURCE Shell Canada Limited.

Comments

by W. K. (Bill) Dettelsen*

The papers of Dr. Brewer and Dr. Boersema have covered exceedingly well the topic of the distortions of financial reporting and taxation in the energy and mining sectors that have been induced by inflation.

Dr. Boersema comments on Shell's supplementary statements on the general price level accounting basis, now referred to in the United States as constant dollar/historical cost accounting. There is little doubt that Shell has been a leader in experimentation in this matter, and it should be complimented on its remarkable efforts. The method is useful for comparative purposes to provide common denominators without making subjective allowances for inflation. It may not provide, nor is it intended to provide, infor-

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mation to help users assess the amounts, the timing, and the certainty of future cash flows, issues that have become more important generally and that, specifically for the extractive industries, have been a primary objective of financial reporting. I can only support Dr. Boersema's view that the utility of current cost data for oil and gas reserves is questionable, even if it could be derived. I commend Dr. Boersema on his efforts to shift the emphasis of these discussions from earnings to cash flow.

Dr. Brewer points out that, for non-renewable resources, price level adjustments would provide suspect approximations of current value, and he believes that reserve recognition accounting is more promising.

There may be very little debate with the first part of his conclusion. I share his view that the uncertainty of replacing reserves, and the unpredictability of exploration activities, make it impossible to measure current cost in the context of the CICA exposure draft; specifically, it would be impossible to determine current cost income "after providing for the impact of specific price changes on the productive assets needed to maintain the operating capability of the enterprise." As Dr. Boersema said, oil and gas reserves are not renewable; many enterprises are not replacing the oil and gas that is currently produced. It is not feasible to determine the current cost of finding new reserves in questionable quantities and in uncertain locations. Indeed, it may be possible for an enterprise to find any reserves, anywhere, at any cost, having any value.

A measurement, by indexation, of the current cost of activities that has led to the discovery of present oil and gas reserves does not provide the current cost of acquiring the same service potential as that embodied in the asset owned, and therefore does not provide a current cost income after providing for the impact of specific price changes on the productive assets needed to maintain the operating capability of the enterprise (which is the primary objective of the CICA current cost accounting proposal). Certainly, the application of indexation to historical exploration and development costs will not provide useful information in assessing future cash flows, which is a fundamental objective of financial reporting – particularly so in the extractive industries – and also a fundamental objective of current cost accounting.

These shortcomings force a different approach to the problem, such as additional disclosures of reserves, estimated future net revenues, production, exploration, and development costs – in other words, factors that enable the reader to make an assessment of the ability of an enterprise to maintain operating capability and in assessing future cash flows. The focal point should be on cash flow in the future rather than income in the past.

Dr. Brewer's second conclusion (that reserve recognition accounting is more promising) needs to be tested against its more significant critiques. Foremost is Porter's study on the subjectivity of reserve estimates and its relation to financial reporting. Porter concludes that reserve estimates do not possess the qualitative characteristics of verifiability, reliability, and comparability that are necessary for the preparation of financial statements.

To quote Dr. Brewer, there is, indeed, "a different reserve recognition accounting for everyone who makes the calculation." But it does focus on the future – on cash flow – on the maintenance of operational capability.

Stepping away for a moment from the specifics of the matters raised by Dr. Brewer and Dr. Boersema, and taking a somewhat different perspective on the problem, one might speculate along the following lines.

There are difficulties in applying "inflation accounting" techniques to the extractive industry. Are those difficulties inherent in the *industry* or in the *techniques*?

One might perhaps argue that in both environments, attempts in the United States and Canada to implement an accounting method that would be responsive to the special problems arising out of our inflationary environment failed in meeting the test of an extreme situation – or, to put it differently, standard setters failed initially or ultimately to test their premises in extreme environments such as the extractive industries. It is questionable whether the environment of the extractive industries is one in which inflation accounting, in whatever format, can be applied.

One may therefore question whether the attempts at inflation accounting so far have been successful (in general terms) if they cannot be successfully applied in extreme environments. Perhaps the conclusions of usefulness of the various approaches to inflation accounting have been inappropriately drawn because the environments to which they have been applied are relatively simple environments in terms of accounting measurement.

It is wise to heed Dr. Boersema's words that to attempt to account for inflation in the oil and gas industry is a bottomless bog that only the unsuspecting novice or the most intrepid accounting standard

setter would voluntarily embark upon. Maybe the bog is more extensive than we have realized, and stretches beyond the extractive industries?

Many companies in the extractive industry have, during the recent very short period of time, been subjected to significant pressures on their cash flow (leading in some cases to an inability to do anything more than meet their current expenses), in contrast to their past ability to invest significant monies in future exploration for the discovery of future oil and gas reserves. Cash flow always has been an important measure of the viability of a company engaged in the extractive industries, and it has become critically so in today's environment.

Many accounting principles are being *tested* under these extreme conditions. For example, there has been some debate recently about the measurement of cash flow. Similarly, in the area of inflation accounting, one could see a concern, for example, in creating gains arising from borrowing, so to speak, or gains arising from working capital deficiency situations when reflecting inflation adjustments in accounts. Such gains arising from inflation adjustments could be in misleading contrast to cash flow or working capital or net asset deficits arising from borrowing or from interest costs associated therewith. Compare the General Motors-Chrysler analogy referred to by Michael Alexander (see Chapter 3). Thus, in an industry where cash flow means everything and earnings sometimes little indeed, significant conflicts could be created by the correction of inflation distortions that might be quite appropriate in other industries.

To identify distortions in the effective tax rates is a complex matter. The process of converting a set of accounts from the conventional accounting model to, for example, current cost accounting in itself may introduce additional timing differences that require, by themselves, adjustments to the tax provisions. Thus, an attempt to adjust tax provisions could introduce a whole new set of complexities, and I am very much in support of the proposition to get earnings before tax adjusted for changing prices first before tackling what already is a complex and most debatable issue – that is, tax accounting.

Which leads me to my final point. Part of this debate is on the topic of "inflation-induced distortions of taxation." The focus in the discussion has been on the words "inflation-induced" and, in my view, an inadequate focal point has been on the word "taxation" – and understandably so since this is a debate on inflation accounting and not on taxation accounting. I believe a case can be made in support of the proposition that accounting for taxation in the extractive industries, as it is currently practised, is no longer in tune with economic reality. We are living today with a taxation regime and a structure of fiscal policy (at both the federal and provincial levels) that is complex and interrelated to such a degree that the simple rules about accounting for taxation and government grants, as they may be found in the CICA handbook, may have become inadequate and quite possibly inappropriate. It is possible, in my view, to raise the question whether provisions for income taxes, as reported in financial accounts of resource companies, are indeed proper.

Therefore, to speak of effective tax rates in an inflationary environment without having a clear appreciation of, for example, whether royalties are royalties or merely a form of tax; whether petroleum and gas revenue tax should be treated as a tax or as a reduction of revenue; whether there is a case to link, accounting-wise, petroleum incentive payments to the petroleum and gas revenue tax; whether these things are grants or an offset to income tax; whether frontier allowances are reductions in tax rates or reductions in asset costs; or whether investment tax credits are likewise. So long as these matters remain unresolved, it may be impossible, if not irrelevant, to address the question of inflation-induced distortions on taxation.

I know that this topic is as complex as the one of accounting for inflation, but it seems to me that a debate on inflation-induced distortions of taxation has to start from a reasonably firm premise about what constitutes taxation – and I submit that the answer to that question is not easily found.

To summarize my discussion of the papers given, I make the following points. There is a need for financial information on the effects of changing prices resulting from both general inflation and changes in specific prices, but there must be a distinction between the two issues. There are advantages to require supplementary information on changing prices, but there should be no requirement for changes to the primary financial statements. There are good arguments for retaining historical cost and nominal dollar reporting modes to report on management's stewardship of funds. Historical costs with constant dollar acccounting measurements is useful in order to put the past in better focus but, in the extractive industries, it has limitations in measuring what may be expected in the future. In the extractive industries, supplementary information such as reserve estimates, or the speed at which future production and cash flows may be attained, may be a more useful measuring stick than current cost accounting. There are fundamental defects in the proposed approaches to inflation accounting when it is applied to the extractive industries, defects which may not

necessarily arise as a result of specific industry applications, but which may be inherent in the accounting proposals and only become evident in the application in circumstances in the oil and gas industry. To measure inflation-induced effects on taxation requires a separate study on what constitutes taxation – on one, some, or all of the various components of not only government tax regimes, but also general fiscal policy, and encompassing a comprehensive study of all components of taxation, incentive schemes, revenue taxes, royalties, or what-have-you. Finally, further experimentation in this area is essential and will be an ongoing concern – but to say that to this audience is redundant because, after all, that's why we are here in the first place!

Comments

by Gary H. Corlett*

Keith Brewer has said it is unrealistic to expect lower taxation. It is evidently up to the different industry sectors to fight among themselves over how much we each should pay of what has to be paid. I say let us abolish corporate taxation altogether. It would help us to renew and further develop our capital base at a pace sufficient to keep up with international competition and maintain our ability to provide our people with jobs. The taxation of corporate profits is one of the smaller sources of government revenues accounting for only 15 per cent of total government revenues. Also, if Keith Brewer's statistics can be believed, the tax rate is already so low it would hardly be missed.

I note that the 1980 return on equity adjusted for inflation presented by Keith Brewer ranged from 7 to 11 per cent for all industries surveyed. John Boersema has told us that Shell has experienced a 4 to 7 per cent inflation-adjusted return over the last five years. This has roughly been Noranda's experience. Keith has already indicated that about 60 per cent of that return was paid out to shareholders. It sounds like a high rate of payout until you realize it only gave them a 4 to 6 per cent return, much less than the 19.5 per cent earned on savings bonds. This only leaves 5 per cent or less of equity to reinvest.

The fact that business is already an enormous generator of tax revenue, through the distribution of the wealth it creates to suppliers and employees, seems to go unnoticed. In Noranda's case, of our almost $3 billion in revenue from sale of product and service in 1980, $1.2 billion or 40 per cent found its way into government hands.

On the subject of tax rates, I have been struggling with how Keith Brewer came up with the effective tax rates he presented. He has shown a tax range for the mining industry from a low of 16 per cent to a high of 31 per cent of before-tax earnings over the last 18 years. My own experience is substantially at variance. For example, Noranda's potash mine in Saskatchewan in the period 1974-79 experienced tax rates approaching and often exceeding 100 per cent and even in 1980 it was only down to 75 per cent. And the Pamour and Mattabi mines in Ontario provided for tax rates of 49 and 61 per cent, respectively. In Noranda, our effective tax rates before adjusting for inflation vary from 35 to 75 per cent of earnings, depending on jurisdiction.

I have difficulty with Keith Brewer's inflation adjustment technique for mineral reserves in which depletable assets are treated as if they were an extention of fixed assets and the cost of acquiring reserves is implicitly assumed to escalate at the same rate as that for the plant. That implies that, when you run low on ore, you just buy another orebody. Nothing could be further from the truth.

I may be reading between the lines, but Keith Brewer has hinted that the before-tax return on total capital employed might be used to measure the best uses for society's resources. I find that to be a frightening concept.

I agree with Keith Brewer's assessment of reserve recognition accounting as a fine way for shareholders and other interested parties to determine the value of a mine. But it is not a good basis for restating traditional financial statements.

My solution is to take the kind of broad brush view of the impact of inflation on the ability of a company to stay healthy – the kind of approach recommended by the Ontario Committee – and be done with it. This means some form of constant dollar approach rather than the current cost approach. It can produce 90 per cent of the benefits for 10 per cent of the work of the other approach.

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* *Vice-President, Business Services, Noranda Mines Limited.*

8 New Reporting and Taxation Rules for Canada in an Inflationary Era

Views of the Accounting Research Committee, Canadian Institute of Chartered Accountants

*by James L. Goodfellow**

In December 1979, the Canadian Institute of Chartered Accountants issued an exposure draft prepared by its Accounting Research Committee, titled *Current Cost Accounting*. In the six-month exposure period that followed the release of this document, considerable controversy arose as to the merits of the proposal and the need for information on changing prices. The Canadian Institute received a record number of responses to its proposal and is currently working hard at revising its material in an appropriate manner. During the exposure period, I have had the opportunity to discuss the subject of accounting for changing prices with businessmen, accountants, academics, and financial analysts. Here I will review and generalize the comments I have received, and provide some ideas as to how the profession should respond. But first I will summarize the December 1979 exposure draft.

It had the following key features:

- It only applied to enterprises with publicly traded securities and with inventories, property, plant, and equipment totaling more than $50 million or with assets more than $350 million.

- It proposed two computations of current cost income: current cost income of the enterprise, and current cost income attributable to shareholders. Current cost income is historical cost income adjusted for depreciation, cost of sales, net productive monetary items, and other impacts of specific price changes on productive assets. Current cost income attributable to shareholders, among other things, incorporates a financing adjustment to reflect the impact on net borrowings.

- A statement of changes in shareholders' equity was recommended.

- The change in the current cost of inventories, and property, plant, and equipment would be disclosed.

Essentially, the disclosures recommended were similar to those required in FASB 16 in the United Kingdom. However, they were different from those required in FAS 33 in the United States. The FAS 33 focused on income from continuing operations, which excludes any changes in the prices of inventories and property, plant, and equipment as well as any adjustments to interest, monetary working capital, or the effects of financing productive assets through borrowings. The FAS 33 required that income from continuing operations be computed on both a current cost and constant dollar basis. The gain or loss on holding net monetary items must be disclosed, but not as part of income from continuing operations. The increase in the current cost of inventory, property, plant, and equipment must also be disclosed, but net of general inflation. The FAS 33 explicitly rejects the financing adjustment and monetary working capital adjustment proposed in the CICA exposure draft as being too complex. Finally, a very significant difference in approach is that FAS 33 requires management to provide an explanation of the information disclosed and a discussion of its significance, whereas the CICA proposal only requires management to explain the basis of the data.

Comments on the exposure draft have been received representing a great diversity of opinion about what should be done. They can be grouped into four categories, those who suggest that the CICA:

- abandon its efforts and do nothing;

- retain its commitment to current cost accounting, but do something far less extensive or dramatic;

- abandon its commitments and do something else;

- retain its commitment and do something more.

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The group that suggests doing nothing has a number of arguments. The impact of inflation is already discounted in capital markets. If more information is required, let the users demand it. No consensus on the appropriate capital maintenance concept exists, and thus more study is needed. Inflation accounting disclosures are not warranted from a cost-benefit viewpoint.

To these, I would reply that there is a difference of opinion about whether the market is correctly discounting inflation, particularly in the United States, judging from Franco Modigliani's presentation. Moreover, if capital markets are to allocate resources in an efficient and effective manner, inflation-adjusted information should be available to all participants, not just a privileged few, such as financial analysts. Companies should be providing the information. As for costs and benefits, the failure to produce the information has costs to society in terms of both the functioning of markets and public policy.

Some of the do-something-less commentators argue that, while the CICA was on the right track with its current cost accounting proposals, it produced an exposure draft that was too complex to implement. Thus, the more complex and controversial adjustments, such as the net productive monetary items and financing adjustments, should be removed. Others suggest that meaningful information can be provided simply by adopting the use of last in, first out (LIFO) accounting for inventories, together with regular appraisals of fixed assets. These *ad hoc* suggestions have problems too. As well as not providing a theoretical foundation on which to build, they do not provide information on the benefits of holding debt in times of inflation. This could be misleading.

Respondents in the do-something-else category generally call for greater flexibility or advocate the use of an alternative capital maintenance concept. Most frequently, this means constant dollar accounting or the U.S. approach of requiring both constant dollar and current cost information. Some others, such as John Boersema, say that current cost information is all right except for specified specialized industries such as resource industries, real estate, or financial institutions. Personally, I think there are problems with constant dollar accounting. First, I fail to see how statements expressed in units of general purchasing power can be more useful than those expressed in units of money. Second, I do not see how the use of a general index, such as the consumer price index, to adjust specific non-monetary items in financial statements, such as a steel mill, can be relevant in the context of the environment in which the entity operates. This is not to say that information based on general price changes, such as required in the U.S. by FAS 33, does not provide a useful standard of comparison for specific price changes. Also, we need flexibility for specialized industries, so that management can provide the most meaningful information.

The do-something-more group includes those who believe that current cost accounting is the correct approach, but who do not think the exposure draft went far enough. Some call for a comprehensive restatement of the financial statement rather than a restated income statement and selected balance sheet information. Some see the proposed size test for companies as discriminatory and suggest that all public companies should be covered. Others argue that the current cost disclosures should be presented as a note to the financial statement, rather than as supplementary information. Still others believe that deferred income taxes, income tax expense, long-term debt, and interest should be adjusted. This is the subject of significant debate and controversy. While developing realistic information on these items represents desirable goals for the profession, I do not think that we can solve these problems in our first attempt at introducing information on changing prices. In this area as in others, a more constructive approach might be to ease into current cost accounting, and thereby gain a better appreciation of the issues before proceeding further.

In conclusion, I believe that now is the time for the accounting profession to show leadership in this important area. A failure to begin solving the problems of accounting for changing prices will have severe consequences for the accounting profession. At stake is our future, the reputation of our profession, and possibly our responsibility for setting the standards for accounting and financial reporting in Canada.

Views of The Canadian Manufacturers' Association

by James Tyrrell*

For the last two years in its pre-budget submission to the federal Minister of Finance, The Canadian Manufacturers' Association has advocated a proposal for reducing the taxation of inflationary profits. This proposal, which was developed by our National Tax Committee, is based on the indexing of equity concept put forward from a number of sources, chiefly the report of the Ontario Committee on Inflation Accounting.

**Manager, Taxes and Insurance, Westinghouse Canada Inc.*

The proposal addresses an important problem with the current tax system. As has been indicated in numerous studies, the impact of inflation on corporate taxes is significant, and has increased the effective tax rate from 46 to 65 per cent, resulting in additional revenues to the government of about $2 billion. The current tax system is clearly inadequate. Most of the concessionary tax measures it contains were introduced, not to offset inflation, but to offset DISC legislation regarding domestic international sales corporations in the U.S. or to stimulate investment, and cannot do both.

The federal government's response to the CMA proposal has resulted in a statement that the government would look to the accounting profession for "the development of a comprehensive inflation accounting system before introducing further *ad hoc* measures." Since the recommendations of the accounting profession will probably be by way of supplementary reporting with discretionary guidelines, I doubt that such guidelines will qualify as a "comprehensive inflation accounting system."

Moreover, the approach to the problem for tax purposes might involve quite different considerations, as first of all tax laws must be written in very clear and unequivocal language. Any correction in historical profits for inflation for tax purposes must be seen by all taxpayers as certain and understandable, and thus would probably err on the side of simplicity in order to meet the test of equity as between taxpayers.

Indexing of equity is an approach that immediately appeals and is simple in concept and application. It is based on the idea that equity is the repository of all the transactions of a business and represents the investment capital of the owner. It is the purchasing power of this capital that is to be preserved from the effects of inflation.

The calculation is straightforward. The equity amount would be the average for the year and expressed in terms of tax value. The use of tax value recognizes government incentive measures, and gives credit for such incentives as the fast write-off of manufacturing assets. For most businesses, the major difference between book equity and tax equity will be the lower fixed asset values after depreciation for tax purposes compared with book depreciation. The index applied would be the GNP deflator, which is a broadly based index of the rate of inflation experienced for the year. As an example, if the average equity was $1 million and the inflation index was 10 per cent, then the inflation adjustment would be a deduction of $100,000 from taxable income.

The proposal has been subject to three types of criticisms. First, it has been argued that it ignores differences in the impact of inflation on fixed asset costs between types of assets and firms. This criticism is correct, but any alternative taking it into account would be hopelessly complex. The second objection is that the proposal does not recognize that different types of income are taxed in different ways. Again this criticism is correct, but amendments can be readily made. For example, only one-half of the equity adjustment could be made in the case where income comes from capital gains. The third criticism is that the proposal would cost too much, variously estimated at up to $1 billion in foregone revenue. This may be so. But, since the problem requires urgent attention, perhaps a gradual introduction is the answer.

It should be noted, in conclusion, that, although inflation impacts on all business, it is those with significant investment in inventories, plant, and equipment that are most vulnerable and are faced with financing replacement goods and equipment out of earnings that are subject to increasingly high rates of tax, because of the effect of inflation. This investment is concentrated in manufacturing industries vital to the Canadian economy in providing jobs and developing resources. Capital must be preserved and not taxed away. The implementation of our proposal for correcting the taxation of inflationary profits would be an effective way to meet the recently enacted U.S. tax measures, which will put Canadian industries at a tax disadvantage in competing for international markets.

Recent Experience in the United States and United Kingdom: Lessons for Canada

by Michael J. Fogg*

My job is to document the experience of the United Kingdom and the United States on the "rocky road" to inflation-adjusted accounting and taxation rules. The major developments in inflation accounting in the U.K. and U.S. are summarized in Tables 8-1 and 8-2, respectively.

The current position in the U.S. and U.K. can be characterized simply. Both countries have an operational accounting standard. Both standards result from extended debate and controversy and are still experimental. Governments in both countries have

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Table 8-1

Summary of Inflation Accounting Proposals, United Kingdom, 1974-80

Proposal	Date	Scope
SSAP 7	May 1974	Supplementary financial statements on constant purchasing power.
Sandilands	September 1975	Current cost accounting to be basic financial statements.
ED 18	November 1976	Phased introduction of current cost accounting financial statements for all companies.
Hyde	November 1977	Voluntary current cost accounting profit and loss account - flexible application.
ED 24	April 1979	Current cost accounting financial statements for large companies.
SSAP 16	March 1980	Current cost accounting financial statements for large companies.

SOURCE See text.

Table 8-2

Summary of Inflation Accounting Proposals, United States, 1969-79

Proposal	Date	Scope
APB No. 3	June 1969	Voluntary supplementary general price level financial statements.
FASB ED	December 1974	Specified supplementary financial information on general price level basis deferred.
ASR 190	March 1976	Large public enterprises to provide replacement cost data in filings with Securities and Exchange Commission.
FASB ED	December 1978	Large public enterprises to provide supplementary information about income from continuing operations and certain other data on *either* a current cost *or* constant dollar basis.
FAS 33	September 1979	Same requirements as Exposure Draft but *both* current cost *and* constant dollar information.

SOURCE See text.

made adjustments to the taxation system, but the adjustments are not based on inflation-adjusted financial statements.

Starting with the U.K. experience, the Sandilands Committee in 1975 recommended current cost accounting as the basic financial statements, but left implementation to the Institute of Chartered Accountants. Exposure Draft 18, issued in 1976, proposed a phased introduction of current cost accounting financial statements for *all* companies. The proposal failed – it had been rushed, and it was a case of too much too soon. Historical cost was to be abandoned before current cost accounting was ready. As a stopgap measure, the Hyde guidelines were issued in November 1977 and proposed voluntary reporting of a current cost profit or loss account. It was to be provided as supplementary information. The guidelines were more flexible and more popular. In March 1980, the Statement of Standard Accounting Practice 16 (SSAP 16) was released and required supplementary current cost financial statements for all large companies. It was simpler than the Exposure Draft 18 proposals. More emphasis was placed on the use of indexes. Contentious issues such as deferred income taxes were avoided. While SSAP 16 has broken some new ground, it is still far from the final answer.

Developments in the U.K. had a significant influence on developments in the U.S. In many ways, the U.S. experience was similar. But support for current cost accounting did not develop as early in the U.S. as in the U.K. The supplementary replacement cost data, as in the Accounting Series Release 190, that large public enterprises had to provide in filings with the Securities and Exchange Commission, beginning in 1976, was considered misleading and was unpopular.

In 1978, the FASB proposed a reporting system that would have required large public enterprises to provide supplementary information about income from continuing operations and certain other data on *either* a current cost *or* constant dollar basis. There was no consensus as to which method was more appropriate. Many would have preferred only constant dollar information. Eventually, the FASB, in FAS 33, decided to require both current cost and constant dollar information as part of an experiment. The proposed U.S. standard differed from that in the U.K. in that it continued to support the financial capital maintenance concept, and thus included no adjustments for monetary working capital or gearing.

In trying to assess FAS 33, we have learned that it is often difficult to discover what the users of the information find useful. So far, there is little evidence that the data are much used, except by some investment analysts. I have the impression that the SSAP 16 data in the U.K. are more used, perhaps because of the larger relative numbers of accountants employed in investment analysis in the U.K. On the other hand, there is a significant number of large companies in the U.S. that either use or are contemplating the use of current cost accounting data for management purposes. In this respect, I am encouraged by a conference I recently attended on the use of current cost accounting data for management purposes, which had more than 200 persons in attendance.

With regard to developments towards an inflation-adjusted taxation system, in the U.K., stock relief and accelerated capital cost allowances were introduced in the early 1970s to provide some relief from the

effects of inflation. In the U.S., companies have been able to account for inventories using last in, first out (LIFO) for many years, and an accelerated capital cost recovery system has been introduced recently.

There are some lessons for Canada from the U.S. and U.K. experience. For taxation, the LIFO inventory system would appear to be a better taxation system than those currently in use in the U.K. and Canada. Additional relief in respect of capital cost allowances can only be expected when the accounting system has developed further and gained general acceptability.

Current developments are of an experimental nature. We are still on the "rocky road" to inflation-adjusted financial reporting and tax rules. There is a need to bring the concepts out of the laboratory and test them in the "real world." Historical cost accounting will have to be retained. In Canada, we will have to make the choice between full or partial supplementary reporting. I believe the U.S. partial approach would probably be more useful, at least in the short term. Rather than criticize the disclosure system, management should work to make the disclosures more useful.

The problems are considerable and complex. Finding a solution in Canada must address the additional problem of the need for international harmonization. There is a need for leadership by the Canadian profession to get an experiment started. A large educational effort will be needed. There is a significant role for the Economic Council, the Financial Executives' Institute, CICA, and others. The CICA must take the initiative. The subject has been debated to a standstill. We need evidence of usefulness. Usefulness is the ultimate test of financial reporting. The usefulness of current cost accounting data can be determined only if decision makers have an opportunity to use it.

Comments

by Morley D. English*

My comments are concentrated on taxation questions. There are two basic themes that tend to come through in discussions of inflation, inflation accounting, and business taxation. First, there is an upward bias in reported income and, hence, taxable income and taxes paid during an inflationary period. Second, the extent of the bias varies significantly among industries because of differing capital intensities, levels of inventory, and debt-equity ratios. This leads to distortions in investment decisions, resource allocation, and, ultimately, reduced economic output.

The two themes imply different policy perspectives. The first theme tends to be emphasized as part of the broad debate on the appropriate size of the government sector and on the reliance to be placed on various tax bases such as investment versus consumption and individual versus corporate. The second theme is tied to economic growth, resource allocation, and the fairness of a tax system based on nominal income.

There is a range of opinions about whether government tax revenues on corporation income have risen as a result of inflation. James Tyrrell has presented an estimate of $2 billion in extra corporate taxes due to inflation. Others have argued that there has not been much change in effective tax rates. With regard to the second theme, there is more agreement that inflation affects the distribution of tax burden among firms. However, it is not evident from the discussions by how much individual firms are affected. It is here that all differences in viewpoints on the price indexes to be used, the nature of the debt adjustment, and special considerations such as regulated industries, multinationals, and financial institutions surface. There is also the question of how much more efficient the economy would be if the tax system were inflation-adjusted.

With regard to Mr. Tyrrell's estimate of $2 billion for additional corporate tax revenue due to inflation, it implies a substantially higher effective tax rate than otherwise, because corporate tax revenues for the federal government were some $6,954 million in fiscal year 1980. The provinces also collect corporate taxes.

Some of the papers presented at this conference show considerably lower changes in effective tax rates. There is an apparent paradox here. If it is generally accepted that book profits are biased upward, how is it that taxes are not? The answer lies in changes in the tax system, which will tend to occur in response to the very real pressures on business income that arise from inflation.

Mr. Tyrrell referred to the two-year write-off and lower tax rate for manufacturing. There have also been a large number of changes since then, as documented in the December 1980 *Government of Canada Tax Expenditure Account*. These include the investment tax credit introduced in June 1975 costing $435 million in corporate tax revenue foregone in 1980, the 3 per cent inventory valuation adjustment costing $370 million, the increase in the small business deduction annual business limit costing $1.2 billion in 1979, and small business development bonds. These items are significant relative to the $6,954 million in actual corporate tax revenues in 1980.

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Were the measures adopted exclusively because of inflation? Obviously not. However, they were adopted in an inflationary environment to respond to the problems posed by that environment. This is clear for the 3 per cent inventory valuation adjustment and the increase in small business deduction limit. Moreover, even in the budgets introducing the investment tax credit, inflation was viewed as the prime problem. Against this backdrop, it would be difficult to state categorically a precise figure, such as $2 billion, for the impact of inflation on corporate tax revenues.

There is really no firm bench mark against which to make this type of determination. For example, corporate taxes as a percentage of federal government budgetary revenues were 20.1 per cent in 1970 and 17.4 per cent in 1980, but this observation can be challenged on the basis of such factors as changing shares of profits in total output or the effect of the business cycle.

Mr. Fogg outlined the "rocky road" to inflation accounting. As noted by the then Minister of Finance, Donald S. Macdonald, in his March 1977 budget, "the government has been following these developments closely" and "it intends to continue to support this process." However, "any comprehensive tax measures in this area should await the development of appropriate accounting systems and the consideration of the full range of issues involved."

Mr. Tyrrell referred to this position and made the valid and important observation that a system of inflation indexing would undoubtedly be different from a system of financial reporting recognizing inflation. To illustrate this point, it can be noted that the capital cost allowance system of tax depreciation is not based upon depreciation for book purposes. Indeed, using book depreciation for tax purposes could introduce pressure to report higher depreciation rates to gain a tax advantage. Thus, there are grounds for believing that a tax system indexed for inflation would continue to use its own method in providing for the write-off of capital assets. Furthermore, if a system of indexed depreciation were adopted using specific indexes developed by plant engineers, Revenue Canada would find the system impossible to audit.

If the tax system would differ from the accounting system, why wait? For one example of the problems foreseen, consider the consequences of introducing a revenue neutral (meaning unchanged total corporate income tax revenues) inflation-adjusted tax system. This might require cutting back tax expenditures such as the 3 per cent inventory allowances. Clearly, some businesses would gain significantly, and others would loose. However, if significant economic gains were to be achieved, this is not necessarily a reason not to forge ahead.

But the tax system has to be seen to be fair to be accepted. The lack of a generally accepted inflation accounting system would stand in the way. There should be signs of consensus before the government imposed anything.

A final point is that, for the many foreign subsidiaries in Canada, tax reductions might reduce their Canadian tax liabilities, but result in higher foreign taxes payable, transferring revenue to foreign fiscs. Having a markedly different tax base in Canada also represents both problems and opportunities for creative tax accounting for multinationals.

Comments

by Seymour L. Wigle*

A good deal of time has been spent talking about inflation accounting. But Michael Alexander's call for leadership notwithstanding, I am not sure what road we should follow. Perhaps as leaders we should stand back and see what others are doing, taking the U.S. and U.K. experience into account before jumping into the cauldron. This might be a form of leadership.

I see James Tyrrell's proposal more in terms of a tax adjustment rather than an adjustment for inflation. Possibly, if the CICA had favoured the U.S. approach at an earlier date, we might already have had something in place. The government would have had to recognize this. Tax relief or, more probably, some shift in burden might have been forthcoming.

It is interesting to consider the U.K. experience. To a certain extent, SSAP 16 was fostered by the U.K. government carrot that it might result in tax recognition. However, it has not been accepted for tax reporting purposes. This does not show good faith. The same thing could happen in Canada. Interestingly, if SSAP 16 had been accepted for tax purposes and had replaced stock relief and fast write-off, the government might have actually collected more revenue.

In contrast to James Tyrrell's view, fast write-off does have an element of response to inflation. Michael Fogg has identified this element in the U.S. and U.K.

As a realist, I cannot overlook the need of the government for revenue. A reduction in revenues will either require expenditure cuts or a higher deficit with all its international repercussions. This is important given current U.S. policy.

**Partner and Director of Technical Services, Price Waterhouse Associates.*

I differ with some of Michael Fogg's observations. I think SSAP 7 failed because the U.K. government did not want to acknowledge that inflation was a continuing problem. The Hyde guidelines were popular, according to Fogg. I would say less offensive than Exposure Draft 18, which imposed a heavy workload on accountants. SSAP 16 represented a "damn-the-torpedoes-full-speed-ahead" approach. I could suggest that, while many in the U.K. have been developing sophisticated internal data to gain competitive advantage in the market, they have been developing SSAP 16 data without enthusiasm.

Overall, I favour an experimental approach. I would stress to James Goodfellow that, if the information is to be produced in a meaningful fashion, management must take care to inform shareholders of the implications. Too often the numbers are developed and put in reports without the message behind them. In my view, accountants are only one group of players in a process that includes, as well, the preparers and users of the data, shareholders, and government. All groups should make their voices heard in the development of accounting standards.

Inflation Accounting and the Small Business

by Irving L. Rosen*

Since the proposal in the December 1979 CICA exposure draft on current cost accounting is directed at public companies with total assets of $350 million or inventory, property, plant, and equipment greater than $50 million, the immediate reaction is that small business by definition should not have any concern. But the exclusion resulted from the protests against an earlier inclusion from a significant number of chartered accountants involved in small business.

Small business is against the application of current cost accounting to itself because of the limited usefulness of the information. Income taxes are based on historical cost financial statements. Any tax relief to take into consideration inflation can be done quite simply. Current cost income figures would generally be lower and could make it more difficult for the small business to obtain bank loans. The lower profit shown does not mean that small business can raise its prices to increase profits, since it must remain competitive in the market place, which it cannot usually affect. If all small businesses were able to do so, it would add to inflationary pressures.

Current cost information once a year in the financial statements does not really add to their utility, because it is not timely enough. Businessmen are generally aware of the swings in the economy and react on a daily basis if necessary, but not because of annual statements. This is not to say that productive capacity maintenance is not a useful tool. It is very useful internally, but it is not necessary for external reporting. The small businessman has an intuitive and practical understanding of its implications with regard to inventory costs, depreciation of fixed assets, monetary assets, and dividends. An understanding that profits are not as high as they appear is unlikely to dampen union wage demands. As for the realistic assessment by government of profits, surely the last round with the Anti-Inflation Board is evidence of the cynicism and cowardliness of politicians, who offered very few words in defence of false allegations against business profits.

The carrot that is constantly placed in front of the nose of small business is that at the present time taxation is levied against historical cost profits. These profits are really overstated. Therefore, if the profits were properly stated, then taxes would be lower. No proof has been offered that the government is prepared to reduce its take. On the other hand, surely with the indication that the government is looking to reduce its deficit, only a dreamer would come to the conclusion that business will get a substantial decrease in taxation.

The point is that it is not necessary to restructure financial statement reporting to get tax relief. This can be accomplished by two very simple measures. Profits could be reduced by an adjustment for inventory and depreciation. The LIFO inventory accounting could be allowed for tax purposes. For depreciation, an accelerated rate could be indexed to the rate of inflation. Possibly the CMA's proposed indexed allowance on owner's equity could be allowed as a deduction. These measures would go a substantial way towards accomplishing what the inflation accounting theorists would like to see forced on the financial statements themselves.

In examining the proposals of the CICA, the problems far outweigh the benefits. The users needs have not been clearly identified. There is lack of evidence of sufficient consultation outside the profession to see if the users will be able to understand and comprehend what is being suggested. It would be far more useful if the financial statements also would disclose the effects of general inflation.

To the average businessman, if current cost accounting means anything, it means indexing for inflation. Anything more is going to be a problem to understand, and more than he would be willing to accept. In my view the proposed cure would be worse than the disease, for the reasons I have already mentioned. If the Department of Finance thinks it is

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too difficult to index capital gains as indicated in a recent discussion paper, how can the accounting profession propose to index in a more sophisticated manner the entire financial statements of business. But, if large businesses wish to spend their resources on this, it is fine with me. However, small business has enough problems keeping one set of records properly. Two would be impossible.

Inflation is a horrendous problem. Two University of Alberta professors have stated that there is a multi-billion dollar economy in Canada hidden from the taxman. If inflation escalates at ridiculous rates and the government is not prepared to deal with the problem, black markets will exist.

The average businessman is aware of the problem of inflation and is generally dealing with these problems with his accountant in an advisory capacity. There is a limit, however, on the resources that the average businessman can spend on accounting advice and on the capacity of the profession to meet demands. Current cost accounting could be the straw that breaks the camel's back as far as client servicing is concerned. If the leaders of the accounting profession allow themselves to be stampeded into following fashion instead of principle, we should not be unduly surprised if this year's academic absurdities become next year's professional standards.

Postscript on the Views of the Accounting Research Committee, Canadian Institute of Chartered Accountants

When the conference was held in October 1981, the Accounting Research Committee of the Canadian Institute of Chartered Accountants was still in the throes of revising its proposal for reporting on the effects of changing prices. Understandably, under the circumstances, James Goodfellow, speaking as a member of the Accounting Research Committee, was unable to reveal the state of the revised proposal at the conference. Instead, he limited himself to presenting his own personal views on the issues raised in the original exposure draft and the comments received.

In December 1981, after the conference, the Accounting Research Committee issued its re-exposure draft, titled *Reporting the Effects of Changing Prices*. Interested parties were to have had until March 15, 1982, to submit their comments to the committee. This deadline subsequently was extended to April 26, 1982.

In the re-exposure draft, the committee continues to call for supplementary information in annual reports on the effects of changing prices to be presented by large publicly held enterprises (with inventories and property, plant, and equipment of $50 million or more, or total assets of $350 million or more). There have been some significant changes in the Accounting Research Committee's recommendations from those in the original exposure draft, in response to comments received.

The adjustment for net productive monetary items has been eliminated. These items are now to be included in net monetary items for the purpose of calculating the financing adjustment. Also dropped are requirements to disclose:

- current cost income of the enterprise before interest and income taxes;
- income per share on a current cost basis; and
- a statement of changes in shareholders' equity on a current cost basis.

Certain additional disclosures are also required in the re-exposure draft. The most important pertain to the effects of changes in the general price level. This shift in emphasis is highlighted by the title of the re-exposure draft, *Reporting the Effects of Changing Prices*. It is more general than the title of the original exposure draft, *Current Cost Accounting*, and is indicative of the broader nature of the revised recommendations that embrace the two capital maintenance concepts of operating capability and financial capital, and encompass both current cost and constant dollar accounting. This recognizes that no single concept of capital for income measurement purposes would meet the needs of all users.

The specific constant dollar information to be disclosed is calculated using the consumer price index. It includes:

- the "general inflation component" of changes in the current cost amounts of inventory and property, plant, and equipment;
- the general purchasing power gain or loss resulting from holding net monetary items; and
- comparative figures restated for changes in the general purchasing power of the dollar.

In addition to these items the supplementary disclosure package includes the current cost information recommended in the original exposure draft. The most important of these items is:

- the current cost of goods sold and the depreciation, depletion, and amortization of property, plant, and equipment, or the amounts of the current cost adjustments for those items;
- the amount of the financing adjustment (calculated by applying the proportion of net monetary liabilities on a current cost basis to the aggregate of

common shareholders' equity on a current cost basis and net monetary liabilities to the current cost adjustments made to income for the period);

- the amount of changes during the reporting period in the current cost amounts of inventory and property, plant, and equipment;
- the carrying value of inventory and property, plant, and equipment on a current cost basis at the end of the reporting period;
- net assets after restating inventory and property, plant, and equipment on a current cost basis at the end of the reporting period; and
- income attributable to common shareholders on a current cost basis.

After considering the special problems for reporting arising in particular industries, the committee concluded that the general provisions of its recommendations can be applied to forest products, mining, oil and gas, and the house building and land development operations of real estate companies. Additional information on reserve quantities and certain costs is to be required for firms operating in mining and oil and gas. The recommendations do not yet apply to income-producing real estate assets or to insurance, banking, and trust companies, pending further consideration of their appropriateness.

It is proposed that the new reporting requirements become effective for annual reports covering financial years ending after December 15, 1982.

Because of its conviction that the new supplementary information must be explained by management to be useful, the committee would require that explanatory material, including a description of the basis of preparation of the supplementary information and a discussion of its significance, be included in the annual report as part of the supplementary disclosures.

Finally, the committee notes that "the re-exposure draft provides for considerable flexibility in the preparation of the information to be disclosed and ... encourages experimentation and the development of techniques and disclosures appropriate to particular circumstances." The committee announced its intention to monitor the implementation of the disclosures and the use to which the information is put. The committee also intends to keep a close eye on developments in other countries, particularly the United States and United Kingdom. The intelligence gathered by the committee will form the basis for a promised comprehensive review of the recommendations, to be undertaken within five years of their release.

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